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WITH EMPIRICAL TEMPERATURE PROFILES

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Cambridge, Mass.

Static Diffusion Models of the Upper Atmosphere with Empirical Temperature Profiles¹

Luigi G. Jacchia²

1. Static and time-dependent models

The first multitemperature models of the atmosphere above 120 km, based on diffusion equilibrium were produced by Nicolet (1961, 1963). These models proceed from a fixed set of boundary conditions, temperature and partial densities, at 120 km. Above this height the partial densities vary according to diffusion theory, except for hydrogen for which diffusion equilibrium is reached only at greater heights (Kockarts and Nicolet, 1962, 1963); thermal diffusion is taken into account for helium. The vertical temperature distribution is computed for the "hottest" model, i.e., the one with the highest exospheric temperature, assuming thermal equilibrium; the other models are obtained from this model by conduction cooling of the atmosphere in the absence of external energy sources. The temperatures which are obtained in this manner at the height of 150 km. (a nearly isopycnic layer) are linearly connected with the constant temperature at 120 km. Models can be computed by this procedure for conveniently spaced values of the exospheric temperature. These quasistatic models have proved very practical as a background for deriving and analyzing atmospheric

densities from satellite drag (Jacchia and Slowey, 1963).

Atmospheric models can be constructed only at the expense of oversimplifications. Such are, for example, the invariance of the boundary conditions at 120 km, and the constant temperature gradient between 120 and 150 km, found in Nicolet's models. Another serious limitation is the assumption of static equilibrium in an atmosphere which is subject to large day-to-night temperature variations, with a period which is not much longer than conduction time in the lower thermosphere.

Atmospheric models which attempt to take into account the diurnal variation at low latitudes have been computed by Harris and Priester (1962a, 1962b). They also assumed fixed boundary conditions at 120 km, and diffusion above this height, but the hydrostatic equation and the heat-conduction equation were integrated simultaneously and the heat input varied with a 24 hour cycle. Since the amount of solar EUV necessary to maintain the heat balance gave diurnal density oscillations much in excess of those observed, Harris and Priester (1962 a, b) were obliged to introduce a second source of heat with a maximum at a different hour. This device may perhaps have a counterpart in the actual heating process, but doubts have been voiced that it may mostly reflect the inadequacy of an oversimplified theory. By suitably varying the "second heat source," the Harris-Priester models can be made to fit the densities from satellite drag with almost any degree of accuracy, and their new version, prepared for the new COSPAR International Reference Atmosphere (CIRA 1965) to be published shortly, is remarkably successful in this respect.

¹ This work was supported in part by grant NSG 87-60 of the National Aeronautics and Space Administration. A preprint of this paper has appeared as Smithsonian Astrophysical Observatory Special Report No. 170. Owing to an imperfection in the numerical-integration program, table 1 in that publication is affected by a small systematic error, whose maximum value, 0.011 in $\log \rho$, occurs at a height around 200 km. when T_∞ is large. For normal satellite heights and temperatures the error amounts to only 0.006 in $\log \rho$, so its practical effect can be considered to be negligible.

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To analyze or predict the motion of satellites under the influence of drag, one requires models which represent atmospheric variations above all points of the globe in a continuous manner. For this purpose, models of the Nicolet type have a considerable advantage over those of Harris and Priester, because with a suitable model for the geographic temperature distribution above the thermopause they can yield atmospheric densities at any given location and height. The Harris-Priester model is confined to low latitudes and does not account for the seasonal migrations of the diurnal bulge; its extension to higher latitudes would engender gross errors and even a discontinuity at the poles. For this reason, it was deemed advisable to produce a set of atmospheric models patterned after those of Nicolet, but based on the most recent data on composition at the boundary level and density at satellite heights. The result is the present tables.

2. Boundary conditions

The boundary conditions selected for the CIRA 1964 tables are the result of a careful weighing of recent data from instrumented rockets and satellites, and it would be difficult to improve on them at this date. Therefore, we have taken them as the basis for our tables with only one change, namely, the helium concentration which was increased by 40 percent to account for the densities derived from satellites at heights greater than 600 km. at times of low solar activity. There is a distinct possibility that these densities, using a constant value, $C_d=2.2$, of the drag coefficient, are actually overestimated by some 10 to 15 percent, since the drag coefficient should increase as the molecular weight of the atmospheric gas decreases (Izakov, 1965; Cook, 1965). In such case the excess helium required to account for these densities could be somewhat reduced.

At $z=120$ km.

$$T=355^\circ \text{ K},$$

$$n(\text{N}_2)=4.0 \times 10^{11},$$

$$n(\text{O}_2)=7.5 \times 10^{10},$$

$$n(\text{O})=7.6 \times 10^{10},$$

$$n(\text{He})=3.4 \times 10^7.$$

Argon was neglected since its contribution to the total density is only 1 percent at 120 km.

and becomes rapidly negligible at greater heights. For hydrogen we have followed Kockarts and Nicolet (1962) and fitted the following equation

$$\log_{10} n(\text{H})_{500}=73.13 - 39.40 \log_{10} T_\infty + 5.5 (\log_{10} T_\infty)^2 \quad (1)$$

to their concentrations at 500 km., which were used as boundary for the computation of concentrations at greater heights.

Starting from the boundary conditions, the concentrations n_i of each constituent i were computed as a function of the geometric height z by integrating the diffusion equation

$$\frac{dn_i}{n_i} = -\frac{dz}{H_i} - \frac{dT}{T} (1+\alpha). \quad (2)$$

Here, T is the temperature, α the thermal-diffusion factor, and H_i is the scale height of the individual constituent, defined as

$$H_i = \frac{kT}{m_i g}, \quad (3)$$

where k is the Boltzmann constant, m_i the molecular (or atomic) mass of the constituent, and g the acceleration of gravity.

For helium, following Nicolet, we used $\alpha=-0.38$; for N_2 , O_2 , and O , $\alpha=0$.

3. Temperature profiles

To compute the vertical distribution of temperature on the basis of theory alone, we must know, among many other things, how the heating-energy input varies with height. Since solar EUV is radiated in a discrete number of spectral lines, each of which is absorbed at a different height (Hinteregger, 1962) and each of which varies in intensity with time in a different manner (Purcell *et al.*, 1964), the problem is complicated enough even when we ignore energy sources other than solar EUV. As to temperature and density observations, the lower thermosphere, from 100 to 150 km., is practically *terra incognita* (or, rather, *aer incognitus*). Any present-day atmospheric model must introduce a considerable degree of empiricism in constructing temperature profiles in that region; this is also the case of Nicolet's profiles.

Since an inadequate theory may be worse than none when it must fit a great many accurate observations, as is our case, we decided

to abandon theory entirely in constructing our temperature profiles. A survey of Nicolet's and of the Harris-Priester temperature profiles showed at once that they can all be represented, with a remarkable degree of approximation, by exponential curves of the form

$$T = T_{\infty} - (T_{\infty} - T_{120}) \exp [-s(z - 120)], \quad (4)$$

where T_{120} is the temperature at 120 km. and T_{∞} the asymptotic (exospheric) temperature;

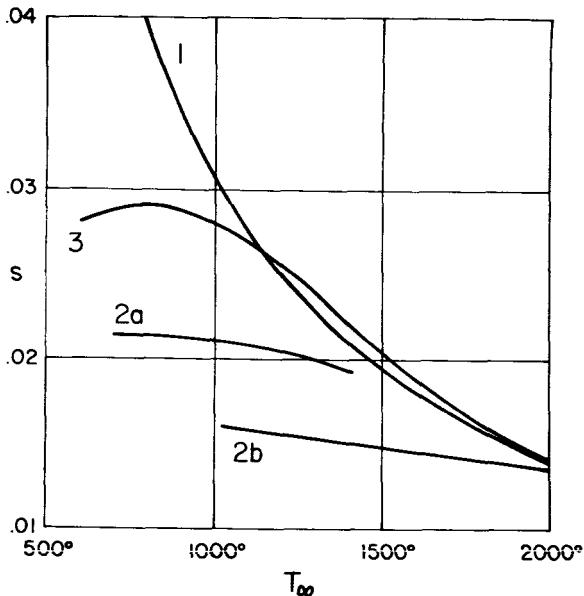


FIGURE 1.—The coefficient s of equation (4), which determines the vertical temperature distribution, as a function of the exospheric temperature T_{∞} . Curve 1 gives the temperature profiles of Nicolet's (1961) models. Curves 2a and 2b are those pertaining to the Harris-Priester models in the COSPAR International Reference Atmosphere 1965 (2a for 4 a.m., 2b for 2 p.m.). Curve 3 gives the temperature profiles of the present tables.

z is expressed in kilometers and s is a constant different for each profile. If we decide to use equation (4) to represent our temperature profiles, the problem is reduced to finding the value of s appropriate to each value of T_{∞} , or, better, an analytical expression for $s(T_{\infty})$ which will generate temperature profiles capable of reproducing the observed variations of density with height for any stage of solar activity. For example, Nicolet's (1961) densities are reproduced within a few percent with temperature profiles generated by equation (4), with

$$s = 34.586 T_{\infty}^{-1} - 4.414 \times 10^{-3} + 5.714 \times 10^{-7} T_{\infty} \quad (1000^{\circ} < T_{\infty} < 2000^{\circ}).$$

After a considerable amount of trial-and-error work, we found that the densities derived from satellite drag (Jacchia and Slowey, 1963, plus up-to-date unpublished data) can be satisfactorily represented using temperature profiles generated by the equation

$$\begin{cases} s = 0.0291 \exp \left(-\frac{x^2}{2} \right) \\ x = \frac{T_{\infty} - 800}{750 + 1.722 \times 10^{-4} (T_{\infty} - 800)^2} \end{cases} \quad (5)$$

The present tables were computed by the numerical integration of equation (2) starting from the boundary conditions given in section 2 and following the temperature profiles generated by equation (4) with s given by equation (5). In figure 1 these values of s are compared with those which are obtained from the temperature profiles of Nicolet's and the CIRA 1964 models. For the latter, we have selected the curves for 4^h and 14^h local solar time, i.e., the hours of the minimum and of the maximum of the diurnal temperature variation. Since there is no variation of s with the hour of the day in our static models, our s curve must represent an average over the day with a possible drift toward the morning value at the low-temperature end and toward the afternoon values at the high-temperature end.

4. Comparison with Nicolet's models

A revised version (Nicolet II) of Nicolet's original (1961) models, provided to us by the author, has been used by us for the past two years to convert atmospheric densities from satellite drag data into temperatures which are better suited for analysis than the original densities (Jacchia and Slowey, 1963, and various more recent papers). Different temperatures are obtained from the same densities if we use the present models; the corrections to the system of Nicolet II to obtain the temperatures given by our models are plotted in figure 2. As we can see, the correction curves show a systematic negative trend with increasing temperature in the range between 800° and 1700° K. This is equivalent to saying that if we consider a certain density variation within these general temperature limits, this variation corresponds to a somewhat smaller temperature range in the present models. For satellites at heights between 350 and 750 km. (i.e., for

all the satellites analyzed in Jacchia and Slowey, 1963) we obtain temperature variations which are, on the average, smaller by 6 percent.

It should be remembered, of course, that a comparison between temperatures becomes impossible in atmospheric regions where the density is nearly independent of temperature. This situation occurs for heights lower than

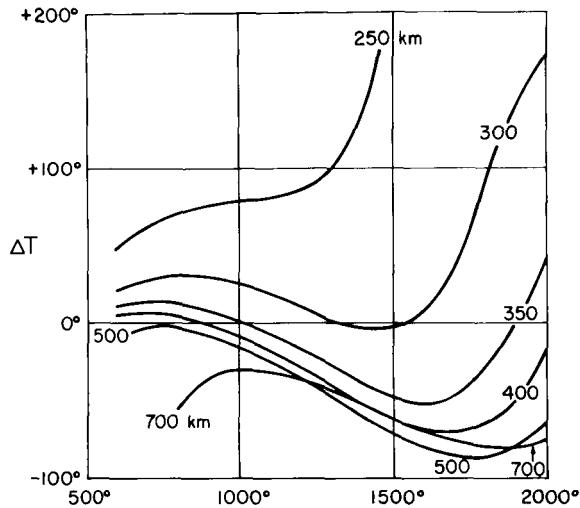


FIGURE 2.—Correction to the exospheric temperatures obtained from densities by use of the Nicolet II models to reduce them to temperatures obtained using the present models.

200 km. at sunspot minimum; at sunspot maximum, however, the nearly isopycnic layer extends much higher, to about 300 km. At these heights and in these conditions even a minuscule difference in density corresponds to enormous temperature differences.

5. Formulae for the systematic temperature variations

Formulae for the variation of the exospheric temperature for use with Nicolet's models were given by Jacchia (1964). These formulae necessitate some revision if we want to use the present atmospheric models.

a. Variation with the solar cycle.—The relation between the exospheric temperature T_0 and the 10.7 cm. solar flux $F_{10.7}$, both smoothed over two or three solar rotations, shows practically no departure from linearity in the new temperature system. In figure 3 we have plotted revised values of the nighttime minimum and daytime maximum temperature from satellite drag data covering the years 1958–1964. As

can be seen, the smoothed nighttime minima \bar{T}_0 can be represented by

$$\bar{T}_0 = 418^\circ + 3^\circ 60 \bar{F}_{10.7}. \quad (6)$$

The bar indicates averages over two or three solar rotations. The daytime maxima are represented by

$$T_M = 1.28 T_0. \quad (7)$$

The smaller range of the diurnal variation (by a factor of 1.28 instead of 1.30) reflects the overall smaller temperature ranges explained in section 4. It should be recalled that the same diurnal density variation requires a much larger temperature oscillation according to the time-dependent models of Harris and Priester. Although the latter are probably closer to reality, the density variations are represented equally well with the present static models.

Equation (6) is valid for average quiet geomagnetic conditions ($K_p=2$, $a_p=7$). To reduce it to $a_p=0$ the absolute term should read 357° instead of 418° .

b. Variation within one solar rotation.—We can use

$$T'_0 = \bar{T}_0 + 1^\circ 8 (\bar{F}_{10.7} - \bar{F}_{10.7}), \quad (8)$$

i.e., the same equation as given by Jacchia (1964), but with the numerical coefficient changed from $1^\circ 9$ to $1^\circ 8$. There is some indication that this coefficient might be somewhat smaller ($1^\circ 5$ or so) near sunspot minimum and larger (possibly $2^\circ 4$) near sunspot maximum.

c. Semiannual variation.—We can use the formula of Jacchia (1964), with a 6 percent reduction in the amplitudes:

$$T_0 = T'_0 + \left(0.37 + 0.14 \sin 2\pi \frac{d-151}{365} \right) \quad (9)$$

$$\bar{F}_{10.7} \sin 4\pi \frac{d-59}{365}$$

(d in days counted from January 1).

d. Diurnal variation.—The same parameters as those found in Jacchia (1964) can be used, except for R , which should be changed from 0.30 to 0.28. For convenience we shall repeat the equations with their explanations.

Let the temperature maximum occur at a point on the globe which has the same latitude as the subsolar point, and let the minimum

nighttime temperature on the globe be T_0 and the maximum daytime temperature on the globe be RT_0 . We shall assume that the daytime maxima T_D and nighttime minima T_N at any point on the globe are given by the equations

$$T_D = T_0(1 + R \cos^m \eta), \quad (10)$$

$$T_N = T_0(1 + R \sin^m \theta),$$

where

$$\eta = \frac{1}{2}(\varphi - \delta_\odot),$$

$$\theta = \frac{1}{2}(\varphi + \delta_\odot),$$

where φ is the geographic latitude and δ_\odot the declination of the sun.

The temperature T at this given point can be expressed as a function of the hour angle H of the sun (the local solar time). Let us write

$$T = T_N \left(1 + A \cos^n \frac{\tau}{2} \right), \quad (11)$$

with

$$A = \frac{T_D - T_N}{T_N} = R \frac{\cos^m \eta - \sin^m \theta}{1 + R \sin^m \theta},$$

and

$$\tau = H + \beta + p \sin(H + \gamma) \quad (-\pi < \tau < \pi) \quad (12)$$

where β , γ , and p are constants, and $H=0$ corresponds to the sun's upper culmination.

The constant β determines the lag of the temperature maximum with respect to the sun's culmination, while p introduces in the temperature curve an asymmetry whose location is determined by γ . Replacing T_D and T_N from equation (10), we can write

$$T = T_0(1 + R \sin^m \theta) \quad (13)$$

$$\left(1 + R \frac{\cos^m \eta - \sin^m \theta}{1 + R \sin^m \theta} \cos^n \frac{\tau}{2} \right).$$

Although in these equations the exponents m and n , which determine the mode of the longitudinal and the latitudinal temperature variations respectively, are kept distinct, we find that in practice we can take $m=n$. There is a distinct possibility that the common value of these coefficients might turn out to be a little smaller than 2.5, the previously assumed value, somewhere between 2.0 and 2.5. We

shall adopt the following constants: $R=0.28$, $m=n=2.5$, $\beta=-45^\circ$, $p=12^\circ$, $\gamma=+45^\circ$.

e. Variation with geomagnetic activity.—After the publication of Jacchia (1964), it was found that the relation between the exospheric temperature and the 3 hour geomagnetic index a_p shows a strong departure from linearity for small values of a_p (Jacchia and Slowey, 1964a). The formula given in the last reference can be used without alterations. The increase of temperature with a_p is then

$$\Delta T = 1^\circ.0 a_p + 125^\circ [1 - \exp(-0.08 a_p)]. \quad (14)$$

ΔT represents the atmospheric heating above the level corresponding to $a_p=0$. During

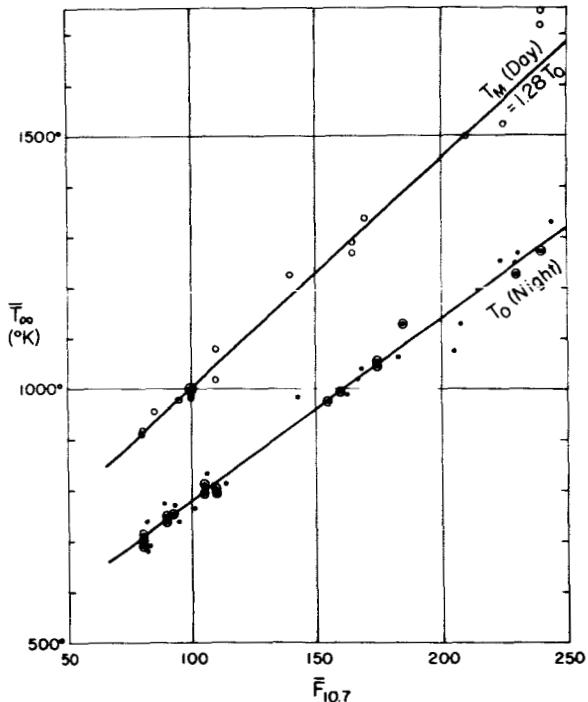


FIGURE 3.—Daytime maximum and nighttime minimum temperatures above the thermopause as a function of the 10.7 cm. solar flux, in units of 10^{-22} watts/m²/cycle/sec. bandwidth. Data are averaged over two or three solar rotations. The temperatures in this diagram must be considered as referred to average quiet geomagnetic conditions ($K_p=2$ or $a_p=7$). (Open circles: individual maxima deduced from satellite drag curves. Circled dots: individual minima deduced from satellite drag curves. Dots: temperatures reduced to the nighttime minimum at times when the curve of the semiannual temperature variation was close to the annual average.)

magnetic storms the temperature variations lag about 6 hours behind the variations in a_p (Jacchia and Slowey, 1964b). There is evidence that $\Delta T/a_p$ is somewhat larger in high geomagnetic latitudes (Jacchia and Slowey, 1964c).

6. Limitations of the present models

As we stated in section 1, atmospheric models must suffer from the oversimplified assumptions one is obliged to make to construct them. Our models share with those of Nicolet the limitations imposed by the invariance of the temperature profiles and of the boundary conditions; this latter limitation is common also to the Harris-Priester models.

A consequence of the fixed boundary conditions is a nearly isopycnic layer at 200 km. at times of moderate to high solar activity. At such times, according to the models (ours, Nicolet's, and the Harris-Priester models), the density at 200 km. should not show appreciable variations when the exospheric temperature varies. This condition is nearly fulfilled by the diurnal variation which practically disappears at heights lower than 200 km. On the other hand, density variations at the 200 km. level have been observed at times of high solar activity in correspondence with geomagnetic storms, and also of the erratic ("27 day") component of the 10.7 cm. flux (Jacchia, 1959).

The different response of the density at 200 km. to different types of heating could be explained by assuming that the temperature at 120 km. is not subject to a diurnal variation, but increases in correspondence with geomagnetic storms and transient enhancements of solar EUV radiation. If we increase the temperature at 120 km. by 50° without changing the composition, the density at 200 km. will increase, according to our models, by a little over 30 percent when the exospheric temperature is about 1400° K. This is just about the order of magnitude of the erratic density changes observed in Sputnik 2 and 3. At greater heights the density change is more or less the same, decreasing only slightly with height, but its relative importance becomes smaller because of the increased response of the density to changes in the exospheric temperature (or, to be more accurate, to changes in the corresponding temperature gradient above 120 km.).

Satellites at heights as low as 160 km. have recently shown that the density changes during magnetic storms are in phase with those at greater heights (Zirm, 1964). This indicates that most of the heating during these storms must occur at heights considerably lower than 160 km. It therefore looks highly probable that the temperature at 120 km. must undergo changes during a magnetic storm.

If we assume that also the erratic changes in solar EUV affect the temperature at 120 km., it is difficult to see how the much larger variations of EUV in the course of the 11 year solar cycle could leave the temperature at 120 km. undisturbed. Perhaps there is such a change and the construction of better models will be possible when this change becomes known.

7. Comparison with recent satellite-drag data at heights below 200 km.

A valuable collection of drag data on satellites with low perigee heights has been recently presented by Small (1964). These data extend in an unbroken series to heights as low as 160 km., and for one satellite (1962 $\beta\sigma$) to 126 km. Apart from the assumed boundary conditions, our atmospheric models are based on drag data from satellites with perigee mainly above 250 km. and were completed before we had knowledge of Small's densities. It was gratifying to find that the agreement of these densities with our models is excellent, as can be seen from figure 4. In this plot we divided the data into three groups according to the mean exospheric temperature prevalent at the pertinent time, in addition we have separately marked the points derived from Sputnik 3 (1958 $\delta 2$), which are particularly numerous and may be affected by a small systematic error.

According to our models $\log \rho$ (ρ =density) at 180 km. varies by about 0.2 from sunspot maximum to sunspot minimum. Since the residuals in $\log \rho$ for the three temperature groups do not show any clear evidence of systematic differences, we must conclude that our models represent rather well not only the average densities, but also their variations. Since, however, the density variations below 200 km. are relatively small, the agreement with observations in this region must be ascribed mainly to the boundary conditions, which are obviously satisfactory. The increase in scatter

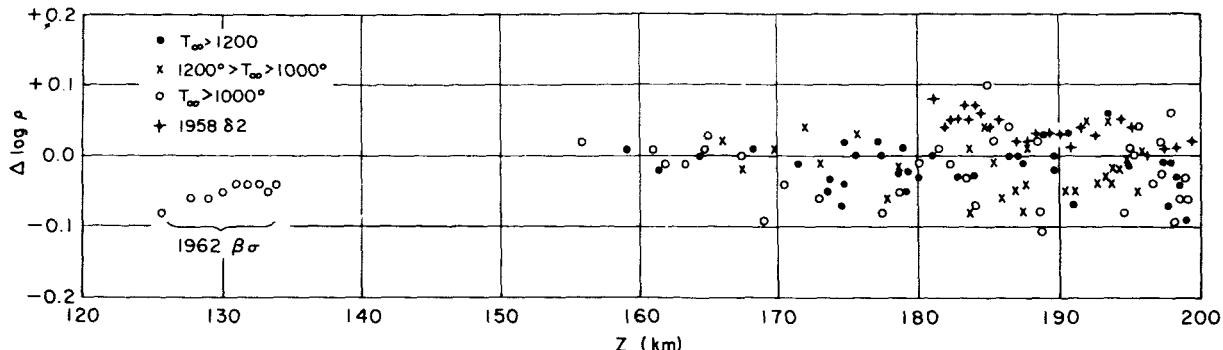


FIGURE 4.—Comparison of the Lockheed densities (Small, 1964) from the drag of low-orbiting satellites with the present tables. The residuals in $\log \rho$ are taken in the sense Lockheed minus present models.

that is observed in figure 4 as one proceeds to greater heights is due to the increase in amplitude of the various types of density variations, which—for reasons stated in section 6—we did not attempt to remove. Above 200 km. the systematic density variations (diurnal, semian-annual, geomagnetic, etc.) become so large that no serious comparison can be made without taking them into account, and a check on the validity of the models is in the inner agreement of temperatures derived from densities determined over a wide range of heights, such as in figure 3.

8. The tables

Detailed data on composition and density are given in table 1 for 30 temperature profiles ending in exospheric temperatures 50° apart and ranging from 650° K to 2100° K. Table 2 gives a summary of the density data only.

The boundary conditions and the temperature profiles are specified in section 3. For the acceleration of gravity we used the formula

$$g=980.665(1+Z/R)^{-2} \text{ cm/sec}^{-2},$$

with $R=6.35677 \times 10^8$ cm.

Hydrogen concentrations are given only above 500 km., as in the CIRA 1965 tables, since hydrogen cannot be considered to be in diffusion equilibrium at lower heights (Kockarts and Nicolet, 1962).

Although the tables extend to a height of 1000 km., the data above 800 km. must be considered as theoretical extrapolations since accurate satellite drag data are not available at those heights. For high exospheric tempera-

tures (above, say, 1300° K) at which atomic oxygen is still the major constituent between 800 and 1000 km., the densities should still be reliable; however, the same cannot be said for lower exospheric temperatures.

The generation of individual densities for given values of z and T_∞ from equations (4) and (5) is so simple that prospective users of these models may deem it preferable to use the formulae rather than the tables to obtain atmospheric densities in electronic-computer programs. In such a case, the extrapolation of the tables to heights above 1000 km., which may be necessary for the sake of continuity in numerical integrations along satellite orbits, is automatic, and the density approaches zero when z increases beyond any limit. If the tables are used and it is desired to have the density ρ approach a limiting value ρ_∞ rather than zero, we can recommend the procedure we have been using for some time in our numerical-integration programs. Compute $b=d\ln \rho/dz=(\ln 10) d \log_{10} \rho/dz$ at 1000 km. from the tabular values of $\log \rho$ and use

$$\rho=\rho_\infty+(\rho_{1000}-\rho_\infty)\exp [b(z-1000)]. \quad (15)$$

(z>1000 km.)

Acknowledgment

The invaluable help of Mr. Jack Slowey in preparing these tables for computation and for publication is gratefully acknowledged.

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Abstract

Tables of atmospheric density and composition are computed for a wide range of exospheric temperatures, starting from a fixed set of boundary conditions at 120 km. The diffusion equation is integrated following empirical temperature profiles of exponential form capable of reproducing the densities derived from satellite drag over the years. Formulae are given which relate the exospheric temperature to solar and geomagnetic activity and allow for the diurnal and semiannual variations. The different response of the density at the 200 km. level to different types of heating is briefly discussed.

Tables

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature
EXOSPHERIC TEMPERATURE = 2100 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DFNSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	573.0	13.3227	13.5007	11.0926	7.3555		26.33	19.21	0.7715E-11	-11.113
140.0	763.7	9.9618	10.2579	10.7611	7.2526		25.98	26.13	0.3651E-11	-11.438
150.0	930.6	9.6908	10.0794	10.5132	7.1762		25.49	32.43	0.2096E-11	-11.679
160.0	1076.7	9.4719	9.9383	10.3136	7.1174		25.14	38.16	0.1346E-11	-11.871
170.0	1204.5	9.2866	9.8213	10.1454	7.0702		24.81	43.39	0.9290E-12	-12.032
180.0	1316.4	9.1249	9.7212	9.9990	7.0308		24.51	48.16	0.6748E-12	-12.171
190.0	1414.3	8.9805	9.6334	9.8686	6.9973		24.22	52.52	0.5088E-12	-12.293
200.0	1499.9	8.8491	9.5549	9.7504	6.9683		23.94	56.53	0.3947E-12	-12.404
210.0	1574.9	8.7279	9.4837	9.6417	6.9426		23.66	60.21	0.3132E-12	-12.504
220.0	1640.5	8.6148	9.4183	9.5405	6.9197		23.40	63.62	0.2530E-12	-12.597
230.0	1697.9	8.5082	9.3576	9.4453	6.8990		23.15	66.77	0.2074E-12	-12.683
240.0	1748.1	8.4071	9.3037	9.3552	6.8801		22.90	69.71	0.1721E-12	-12.764
250.0	1792.1	8.3105	9.2470	9.2693	6.8626		22.65	72.45	0.1443E-12	-12.841
260.0	1830.5	8.2176	9.1959	9.1869	6.8465		22.41	75.03	0.1221E-12	-12.913
270.0	1864.2	8.1280	9.1471	9.1074	6.8313		22.18	77.45	0.1049E-12	-12.983
280.0	1893.6	8.0410	9.1003	9.0304	6.8171		21.95	79.73	0.8924E-13	-13.049
290.0	1919.4	7.9564	9.0550	8.9556	6.8036		21.72	81.90	0.7700E-13	-13.114
300.0	1942.0	7.8738	9.0112	8.8826	6.7937		21.50	83.97	0.6677E-13	-13.175
320.0	1979.0	7.7136	8.9270	8.7414	6.7666		21.08	87.83	0.5089E-13	-13.293
340.0	2037.3	7.5589	8.8465	8.6051	6.7442		20.67	91.39	0.3936E-13	-13.405
360.0	2029.0	7.4083	8.7689	8.4727	6.7231		20.28	94.72	0.3081E-13	-13.511
380.0	2045.7	7.2611	8.6935	8.3434	6.7029		19.91	97.86	0.2438E-13	-13.613
400.0	2058.4	7.1166	8.6199	8.2166	6.6835		19.55	100.84	0.1946E-13	-13.711
420.0	2068.1	6.9743	8.5478	8.0918	6.6647		19.22	103.68	0.1565E-13	-13.805
440.0	2075.6	6.8339	8.4768	7.9687	6.6463		18.91	106.41	0.1268E-13	-13.897
460.0	2091.1	6.6952	8.4068	7.8471	6.6284		18.61	109.05	0.1034E-13	-13.985
480.0	2085.7	6.5579	8.3377	7.7267	6.6107		18.33	111.59	0.8479E-14	-14.072
500.0	2089.0	6.4218	8.2693	7.6075	6.5934	2.9454	18.07	114.05	0.6989E-14	-14.156
520.0	2091.6	6.2868	8.2016	7.4893	6.5762	2.9406	17.82	116.45	0.5789E-14	-14.237
540.0	2093.6	6.1530	9.1344	7.3720	6.5593	2.9360	17.59	118.78	0.4816E-14	-14.317
560.0	2095.1	6.0201	8.0678	7.2556	6.5425	2.9315	17.37	121.06	0.4022E-14	-14.396
580.0	2096.2	5.8881	8.0017	7.1401	6.5258	2.9271	17.17	123.29	0.3373E-14	-14.472
600.0	2097.1	5.7570	7.9361	7.0252	6.5093	2.9228	16.97	125.49	0.2838E-14	-14.547
620.0	2097.8	5.6267	7.8709	6.9112	6.4930	2.9185	16.78	127.65	0.2396E-14	-14.621
640.0	2098.3	5.4972	7.8061	6.7978	6.4767	2.9144	16.60	129.80	0.2028E-14	-14.693
660.0	2098.7	5.3686	7.7417	6.6852	6.4606	2.9102	16.43	131.94	0.1723E-14	-14.764
680.0	2099.0	5.2497	7.6777	6.5732	6.4446	2.9061	16.26	134.08	0.1467E-14	-14.834
700.0	2099.2	5.1135	7.6141	6.4619	6.4286	2.9021	16.10	136.23	0.1252E-14	-14.902
750.0	2099.6	4.7989	7.4568	6.1864	6.3892	2.8921	15.70	141.75	0.8516E-15	-15.070
800.0	2099.8	4.4888	7.3017	5.9149	6.3504	2.8823	15.29	147.63	0.5869E-15	-15.231
850.0	2099.9	4.1830	7.1488	5.6472	6.3121	2.8726	14.85	154.07	0.4093E-15	-15.388
900.0	2099.9	3.8814	6.9980	5.3832	6.2744	2.8631	14.38	161.33	0.2886E-15	-15.540
950.0	2100.0	3.5839	6.8493	5.1228	6.2372	2.8538	13.87	169.66	0.2056E-15	-15.687
1000.0	2100.0	3.2906	6.7026	4.8659	6.2005	2.8445	13.30	179.35	0.1480E-15	-15.830

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 2050 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(CO ₂) /CM ³	LOG N(C) /CM ³	LOG N(N ₂) /CM ³	LOG N(He) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.40	11.62	0.2461E-10	-10.609
130.0	572.2	10.3231	10.5011	11.0930	7.3598		26.33	19.19	0.7722E-11	-11.112
140.0	761.6	9.9624	10.2587	10.7617	7.2532		25.88	26.06	0.3657E-11	-11.437
150.0	926.7	9.6914	10.0806	10.5139	7.1771		25.49	32.30	0.2100E-11	-11.678
160.0	1070.7	9.4722	9.9397	10.3142	7.1187		25.13	37.96	0.1348E-11	-11.870
170.0	1196.2	9.2867	9.8229	10.1458	7.0717		24.81	43.10	0.9303E-12	-12.031
180.0	1305.6	9.1246	9.7228	9.9992	7.0326		24.50	47.78	0.6754E-12	-12.170
190.0	1401.0	8.9797	9.6350	9.8685	6.9993		24.20	52.05	0.5090E-12	-12.293
200.0	1484.2	8.8477	9.5565	9.7498	6.9704		23.92	55.97	0.3946E-12	-12.404
210.0	1556.7	8.7258	9.4852	9.6405	6.9449		23.65	59.56	0.3128E-12	-12.505
220.0	1619.9	8.6120	9.4197	9.5387	6.9221		23.38	62.88	0.2524E-12	-12.598
230.0	1675.0	8.5047	9.3587	9.4430	6.9014		23.12	65.95	0.2067E-12	-12.685
240.0	1723.1	8.4027	9.3016	9.3522	6.8826		22.87	68.80	0.1713E-12	-12.766
250.0	1765.0	8.3052	9.2476	9.2654	6.8652		22.62	71.47	0.1435E-12	-12.843
260.0	1801.5	8.2113	9.1962	9.1822	6.8491		22.37	73.96	0.1212E-12	-12.917
270.0	1833.3	8.1206	9.1471	9.1018	6.8340		22.14	76.31	0.1031E-12	-12.987
280.0	1861.1	8.0326	9.0998	9.0239	6.8197		21.90	78.53	0.8835E-13	-13.054
290.0	1885.3	7.9468	9.0541	8.9481	6.8062		21.67	80.63	0.7611E-13	-13.119
300.0	1906.4	7.8630	9.0098	8.8742	6.7933		21.45	82.63	0.6590E-13	-13.181
320.0	1940.9	7.7003	8.9246	8.7308	6.7691		21.02	86.38	0.5006E-13	-13.301
340.0	1967.9	7.5429	8.8430	8.5923	6.7466		20.63	89.84	0.3859E-13	-13.414
360.0	1986.9	7.3896	8.7641	8.4575	6.7252		20.21	93.09	0.3011E-13	-13.521
380.0	2002.1	7.2396	8.6874	8.3257	6.7048		19.83	96.14	0.2374E-13	-13.625
400.0	2013.6	7.0922	8.6125	8.1964	6.6851		19.47	99.05	0.1888E-13	-13.724
420.0	2022.3	6.9469	8.5389	8.0690	6.6660		19.14	101.83	0.1514E-13	-13.820
440.0	2029.0	6.8035	8.4665	7.9433	6.6474		18.82	104.50	0.1223E-13	-13.913
460.0	2034.0	6.6617	8.3951	7.8190	6.6291		18.52	107.08	0.9936E-14	-14.003
480.0	2037.8	6.5213	8.3244	7.6959	6.6111		18.24	109.57	0.8121E-14	-14.090
500.0	2040.8	6.3821	8.2545	7.5740	6.5934	2.9752	17.98	111.98	0.6672E-14	-14.176
520.0	2043.0	6.2440	8.1853	7.4531	6.5759	2.9704	17.73	114.32	0.5509E-14	-14.259
540.0	2044.7	6.1070	8.1166	7.3331	6.5586	2.9657	17.50	116.61	0.4568E-14	-14.340
560.0	2045.9	5.9710	8.0484	7.2139	6.5414	2.9612	17.28	118.84	0.3804E-14	-14.420
580.0	2046.9	5.8358	7.9808	7.0956	6.5244	2.9567	17.07	121.03	0.3189E-14	-14.498
600.0	2047.7	5.7016	7.9136	6.9781	6.5075	2.9523	16.88	123.19	0.2667E-14	-14.574
620.0	2048.2	5.5682	7.8468	6.8613	6.4908	2.9480	16.69	125.32	0.2245E-14	-14.649
640.0	2048.6	5.4356	7.7805	6.7452	6.4742	2.9437	16.51	127.43	0.1895E-14	-14.722
660.0	2049.0	5.3038	7.7146	6.6298	6.4576	2.9395	16.34	129.55	0.1605E-14	-14.795
680.0	2049.2	5.1729	7.6490	6.5151	6.4412	2.9353	16.17	131.67	0.1363E-14	-14.866
700.0	2049.4	5.0426	7.5839	6.4011	6.4249	2.9312	16.00	133.81	0.1160E-14	-14.936
750.0	2049.7	4.7204	7.4227	6.1190	6.3846	2.9210	15.59	139.34	0.7833E-15	-15.106
800.0	2049.8	4.4027	7.2639	5.8409	6.3448	2.9109	15.16	145.28	0.5360E-15	-15.271
850.0	2049.9	4.0894	7.1072	5.5666	6.3056	2.9011	14.71	151.87	0.3713E-15	-15.430
900.0	2050.0	3.7905	6.9528	5.2961	6.2669	2.8913	14.21	159.38	0.2601E-15	-15.585
950.0	2050.0	3.4758	6.8004	5.0294	6.2288	2.8817	13.66	168.10	0.1842E-15	-15.735
1000.0	2050.0	3.1753	6.6502	4.7663	6.1912	2.8722	13.05	178.32	0.1318E-15	-15.880

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
 EXOSPHERIC TEMPERATURE = 2000 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(CO) /CM ³	LOG N(O) /CM ³	LOG N(N ₂) /CM ³	LOG N(He) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DFN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	571.7	10.3234	10.5015	11.0933	7.3601		26.33	19.17	0.7728E-11	-11.112
140.0	759.8	9.9629	10.2595	10.7623	7.12538		25.88	26.00	0.3662E-11	-11.436
150.0	923.1	9.6919	10.0817	10.5146	7.1781		25.48	32.19	0.2103E-11	-11.677
160.0	1065.0	9.4727	9.9411	10.3149	7.1159		25.13	37.76	0.1350E-11	-11.870
170.0	1188.1	9.2870	9.8245	10.1464	7.0731		24.80	42.82	0.9319E-12	-12.031
180.0	1295.1	9.1246	9.7245	9.9996	7.0343		24.49	47.41	0.6764E-12	-12.170
190.0	1387.9	8.9792	9.6368	9.8685	7.0012		24.19	51.59	0.5095E-12	-12.293
200.0	1468.5	8.9466	9.5583	9.7495	6.9725		23.90	55.41	0.3947E-12	-12.404
210.0	1538.5	8.7241	9.4869	9.6397	6.9472		23.63	58.92	0.3126E-12	-12.505
220.0	1599.3	8.6096	9.4212	9.5373	6.9245		23.36	62.14	0.2520E-12	-12.599
230.0	1652.1	8.5015	9.3601	9.4409	6.9040		23.09	65.12	0.2062E-12	-12.686
240.0	1697.9	8.3986	9.3027	9.3493	6.8853		22.84	67.99	0.1707E-12	-12.768
250.0	1737.7	8.3301	9.2435	9.2618	6.8680		22.58	70.47	0.1427E-12	-12.845
260.0	1772.2	8.2052	9.1967	9.1777	6.8519		22.34	72.89	0.1204E-12	-12.919
270.0	1802.2	8.1134	9.1472	9.0965	6.8368		22.10	75.15	0.1023E-12	-12.990
280.0	1828.3	8.0242	9.0995	9.0176	6.8225		21.86	77.30	0.8751E-13	-13.058
290.0	1850.9	7.9373	9.0533	8.9408	6.8090		21.63	79.34	0.7527E-13	-13.123
300.0	1870.5	7.8523	9.0085	8.8658	6.7961		21.40	81.28	0.6507E-13	-13.187
320.0	1902.4	7.6870	8.9222	8.7202	6.7718		20.96	84.91	0.4926E-13	-13.308
340.0	1926.4	7.5268	8.8394	8.5793	6.7490		20.53	88.28	0.3783E-13	-13.422
360.0	1944.5	7.3706	8.7593	8.4420	6.7275		20.13	91.43	0.2942E-13	-13.531
380.0	1958.2	7.2176	8.6813	8.3077	6.7068		19.75	94.41	0.2311E-13	-13.636
400.0	1968.5	7.0671	8.6049	8.1756	6.6869		19.39	97.24	0.1832E-13	-13.737
420.0	1976.2	6.9187	8.5298	8.0455	6.6675		19.05	99.96	0.1464E-13	-13.835
440.0	1982.1	6.7721	8.4559	7.9170	6.6495		18.73	102.57	0.1178E-13	-13.929
460.0	1986.5	6.6270	8.3829	7.7850	6.6259		18.43	105.09	0.9536E-14	-14.021
480.0	1989.8	6.4834	8.3107	7.6640	6.6115		18.15	107.52	0.7767E-14	-14.110
500.0	1992.3	6.3409	8.2392	7.5392	6.5934	3.7070	17.89	109.88	0.6360E-14	-14.197
520.0	1994.7	6.1995	8.1683	7.4154	6.5755	3.0021	17.64	112.18	0.5234E-14	-14.281
540.0	1995.6	6.0592	8.0980	7.2925	6.5578	2.9974	17.41	114.41	0.4326E-14	-14.364
560.0	1996.7	5.9199	8.0282	7.1705	6.5403	2.9928	17.19	116.60	0.3591E-14	-14.445
580.0	1997.5	5.7814	7.9599	7.0493	6.5229	2.9883	16.98	118.75	0.2992E-14	-14.524
600.0	1998.1	5.6439	7.8900	6.9289	6.5056	2.9838	16.79	120.87	0.2502E-14	-14.602
620.0	1998.6	5.5072	7.8216	6.8092	6.4884	2.9794	16.60	122.97	0.2099E-14	-14.678
640.0	1998.9	5.3714	7.7537	6.6903	6.4714	2.9751	16.42	125.05	0.1767E-14	-14.753
660.0	1999.2	5.2363	7.6861	6.5720	6.4545	2.9707	16.24	127.15	0.1491E-14	-14.826
680.0	1999.4	5.1021	7.6190	6.4545	6.4377	2.9665	16.07	129.25	0.1262E-14	-14.899
700.0	1999.5	4.9696	7.5522	6.3377	6.4210	2.9622	15.90	131.38	0.1071E-14	-14.970
750.0	1999.8	4.6383	7.3871	6.0485	6.3796	2.9518	15.48	136.93	0.7180E-15	-15.144
800.0	1999.9	4.3127	7.2243	5.7634	6.3388	2.9415	15.03	142.96	0.4878E-15	-15.312
850.0	1999.9	3.9916	7.0637	5.4823	6.2987	2.9314	14.55	149.74	0.3355E-15	-15.474
900.0	2000.0	3.6750	6.9054	5.2051	6.2590	2.9214	14.03	157.55	0.2334E-15	-15.632
950.0	2000.0	3.3627	6.7492	4.9317	6.2200	2.9115	13.44	166.71	0.1643E-15	-15.784
1000.0	2000.0	3.0546	6.5952	4.6620	6.1814	2.9018	12.79	177.55	0.1169E-15	-15.932

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1950 DEGREES

HEIGHT KM	TEMP. DEG K	LOG N(CO) /CM ³	LOG N(O) /CM ³	LOG N(N ₂) /CM ³	LOG N(HE) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	571.3	10.3236	10.5018	11.0935	7.362		26.33	19.16	0.7732E-11	-11.112
140.0	758.2	9.9634	10.2602	11.7629	7.2543		25.88	25.95	0.3667E-11	-11.436
150.0	919.8	9.6926	10.0828	10.5154	7.1789		25.48	32.06	0.2107E-11	-11.676
160.0	1059.5	9.4734	9.9425	10.3158	7.1211		25.13	37.57	0.1353E-11	-11.869
170.0	1190.2	9.2875	9.8261	10.1472	7.0746		24.79	42.55	0.9339E-12	-12.030
180.0	1284.6	9.1247	9.7264	10.0002	7.0361		24.48	47.95	0.6777E-12	-12.169
190.0	1374.8	8.9789	9.6387	9.8688	7.0032		24.18	51.13	0.5192E-12	-12.292
200.0	1452.8	8.8459	9.5602	9.7493	6.9747		23.89	54.95	0.3950E-12	-12.403
210.0	1520.2	8.7227	9.4888	9.6391	6.9496		23.61	58.26	0.3126E-12	-12.505
220.0	1578.5	8.6074	9.4230	9.5361	6.9271		23.34	61.39	0.2518E-12	-12.599
230.0	1629.9	8.4985	9.3617	9.4390	6.9067		23.07	64.28	0.2057E-12	-12.687
240.0	1672.4	8.3947	9.3041	9.3467	6.8880		22.81	66.95	0.1701E-12	-12.769
250.0	1710.1	8.2952	9.2495	9.2584	6.8708		22.55	69.45	0.1421E-12	-12.848
260.0	1742.6	8.1992	9.1974	9.1734	6.8547		22.30	71.78	0.1196E-12	-12.922
270.0	1770.7	8.1063	9.1475	9.0912	6.8397		22.05	73.98	0.1015E-12	-12.993
280.0	1795.0	8.0159	9.0993	9.0113	6.8254		21.81	76.06	0.8669E-13	-13.062
290.0	1816.0	7.9277	9.0527	8.7335	6.8119		21.57	78.02	0.7444E-13	-13.128
300.0	1834.2	7.8414	9.0074	8.8573	6.7989		21.34	79.90	0.6424E-13	-13.192
320.0	1863.5	7.6733	8.9199	8.7094	6.7745		20.89	83.42	0.4846E-13	-13.315
340.0	1885.3	7.5103	8.8358	8.5660	6.7516		20.47	86.68	0.3708E-13	-13.431
360.0	1901.7	7.3510	8.7543	8.4261	6.7298		20.06	89.75	0.2872E-13	-13.542
380.0	1913.9	7.1948	8.6748	8.2890	6.7089		19.67	92.65	0.2248E-13	-13.648
400.0	1923.0	7.0410	8.5969	8.1541	6.6886		19.31	95.41	0.1775E-13	-13.751
420.0	1929.8	6.8893	8.5203	8.0211	6.6689		18.96	98.06	0.1413E-13	-13.850
440.0	1934.9	6.7394	8.4447	7.8897	6.6456		18.64	100.61	0.1133E-13	-13.946
460.0	1938.7	6.5909	8.3701	7.7596	6.6336		18.34	103.07	0.9138E-14	-14.039
480.0	1941.6	6.4437	8.2962	7.6307	6.6118		18.06	105.45	0.7416E-14	-14.130
500.0	1943.7	6.2978	8.2230	7.5029	6.5933	3.0409	17.79	107.76	0.6051E-14	-14.218
520.0	1945.3	6.1530	8.1504	7.3760	6.5750	3.0360	17.55	110.01	0.4962E-14	-14.304
540.0	1946.5	6.0092	8.0784	7.2501	6.5569	3.0313	17.31	112.20	0.4087E-14	-14.389
560.0	1947.4	5.8663	8.0068	7.1250	6.5390	3.0266	17.10	114.34	0.3381E-14	-14.471
580.0	1948.0	5.7244	7.9358	7.0008	6.5211	3.0219	16.89	116.45	0.2808E-14	-14.552
600.0	1948.5	5.5834	7.8653	6.8773	6.5034	3.0174	16.69	118.53	0.2340E-14	-14.631
620.0	1948.9	5.4433	7.7951	6.7546	6.4859	3.0129	16.50	120.60	0.1957E-14	-14.708
640.0	1949.2	5.3040	7.7255	6.6326	6.4664	3.0085	16.32	122.66	0.1642E-14	-14.785
660.0	1949.4	5.1655	7.6562	6.5114	6.4510	3.0041	16.14	124.73	0.1381E-14	-14.860
680.0	1949.5	5.0279	7.5874	6.3909	6.4338	2.9997	15.97	126.83	0.1165E-14	-14.934
700.0	1949.7	4.8910	7.5189	6.2711	6.4167	2.9953	15.80	128.96	0.9858E-15	-15.006
750.0	1949.8	4.5523	7.3495	5.9745	6.3743	2.9846	15.36	134.54	0.6556E-15	-15.183
800.0	1949.9	4.2183	7.1825	5.6921	6.3325	2.9741	14.89	140.69	0.4420E-15	-15.355
850.0	1950.0	3.8890	7.0179	5.3938	6.2913	2.9637	14.39	147.69	0.3018E-15	-15.520
900.0	1950.0	3.5642	6.8555	5.1095	6.256	2.9535	13.82	155.86	0.2085E-15	-15.681
950.0	1950.0	3.2439	6.6953	4.8291	6.2105	2.9434	13.20	165.53	0.1459E-15	-15.836
1000.0	1950.0	2.9280	6.5374	4.5525	6.1710	2.9334	12.51	177.07	0.1031E-15	-15.987

TABLE 1.--Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1900 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(CO) /CM ³	LOG N(O) /CM ³	LOG N(N ₂) /CM ³	LOG N(He) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DENSITY GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.609	
130.0	571.0	10.3238	10.5020	11.0937	7.3604	26.33	19.15	0.7735E-11	-11.112	
140.0	756.8	9.9639	10.2609	10.7635	7.2548	25.98	25.90	0.3672E-11	-11.435	
150.0	916.6	9.6933	10.0840	10.5162	7.1797	25.48	31.96	0.2111E-11	-11.675	
160.0	1054.1	9.4741	9.9440	10.3167	7.1223	25.12	37.39	0.1356E-11	-11.868	
170.0	1172.4	9.2881	9.8279	10.1481	7.0762	24.79	42.27	0.9362E-12	-12.029	
180.0	1274.1	9.1251	9.7283	10.0029	7.0379	24.47	46.68	0.6792E-12	-12.168	
190.0	1361.6	8.9789	9.6408	9.8693	7.0053	24.17	50.66	0.5111E-12	-12.291	
200.0	1436.9	8.8453	9.5623	9.7494	6.9770	23.88	54.28	0.3955E-12	-12.403	
210.0	1501.6	8.7215	9.4908	9.6386	6.9521	23.59	57.50	0.3127E-12	-12.505	
220.0	1557.3	8.6054	9.4249	9.5351	6.9297	23.31	60.62	0.2516E-12	-12.599	
230.0	1605.2	8.4956	9.3634	9.4373	6.9055	23.04	63.41	0.2053E-12	-12.688	
240.0	1646.4	8.3908	9.3055	9.3442	6.8599	22.78	66.00	0.1696E-12	-12.771	
250.0	1681.9	8.2903	9.2506	9.2550	6.8737	22.52	68.41	0.1414E-12	-12.850	
260.0	1712.4	8.1932	9.1982	9.1691	6.8517	22.26	70.66	0.1189E-12	-12.925	
270.0	1738.6	8.0991	9.1478	9.0858	6.8427	22.01	72.78	0.1007E-12	-12.997	
280.0	1761.2	8.0074	9.0992	9.0349	6.8284	21.76	74.78	0.8588E-13	-13.066	
290.0	1780.6	7.9179	9.0521	8.9259	6.8149	21.52	76.68	0.7361E-13	-13.133	
300.0	1797.3	7.8302	9.0062	8.8486	6.8019	21.29	78.50	0.6341E-13	-13.198	
320.0	1824.0	7.6592	8.9175	8.6981	6.7773	20.83	81.90	0.4765E-13	-13.322	
340.0	1843.8	7.4930	8.8320	8.5521	6.7542	20.39	85.07	0.3632E-13	-13.440	
360.0	1858.4	7.3305	8.7491	8.4094	6.7322	19.98	88.06	0.2802E-13	-13.553	
380.0	1869.2	7.1709	8.6680	8.2693	6.7110	19.59	90.87	0.2184E-13	-13.661	
400.0	1877.2	7.0117	8.5885	8.1315	6.6904	19.22	93.56	0.1718E-13	-13.765	
420.0	1883.1	6.8585	8.5102	7.9954	6.6703	18.87	96.15	0.1362E-13	-13.866	
440.0	1887.5	6.7049	8.4329	7.8609	6.6506	18.55	98.64	0.1087E-13	-13.964	
460.0	1890.8	6.5528	8.3565	7.7276	6.6312	18.24	101.04	0.8739E-14	-14.059	
480.0	1893.2	6.4020	8.2808	7.5955	6.6120	17.96	103.37	0.7066E-14	-14.151	
500.0	1894.9	6.2524	8.2058	7.4645	6.5931	3.0772	17.70	105.63	0.5744E-14	-14.241
520.0	1896.3	6.1039	8.1314	7.3345	6.5744	3.0722	17.45	107.82	0.4692E-14	-14.329
540.0	1897.2	5.9564	8.0576	7.2053	6.5558	3.0674	17.22	109.97	0.3851E-14	-14.414
560.0	1898.0	5.8099	7.9842	7.0770	6.5374	3.0626	17.00	112.07	0.3174E-14	-14.498
580.0	1898.5	5.6644	7.9114	6.9496	6.5191	3.0579	16.79	114.14	0.2627E-14	-14.581
600.0	1898.9	5.5197	7.8390	6.8229	6.5010	3.0533	16.60	116.18	0.2182E-14	-14.661
620.0	1899.2	5.3759	7.7671	6.6970	6.4830	3.0487	16.41	118.22	0.1818E-14	-14.740
640.0	1899.4	5.2330	7.6956	6.5719	6.4651	3.0441	16.22	120.26	0.1520E-14	-14.818
660.0	1899.5	5.0909	7.6245	6.4475	6.4473	3.0396	16.04	122.32	0.1274E-14	-14.895
680.0	1899.7	4.9496	7.5539	6.3238	6.4256	3.0351	15.86	124.41	0.1072E-14	-14.973
700.0	1899.8	4.8092	7.4836	6.2008	6.4120	3.0307	15.69	126.54	0.9034E-15	-15.044
750.0	1899.9	4.4615	7.3098	5.8965	6.3685	3.0197	15.23	132.18	0.5959E-15	-15.225
800.0	1899.9	4.1188	7.1384	5.5964	6.3256	3.0089	14.74	138.48	0.3985E-15	-15.400
850.0	1900.0	3.7808	6.9694	5.3005	6.2823	2.9982	14.20	145.76	0.2700E-15	-15.569
900.0	1900.0	3.4475	6.8028	5.0087	6.2416	2.9877	13.60	154.34	0.1852E-15	-15.732
950.0	1900.0	3.1188	6.6384	4.7209	6.2005	2.9774	12.93	164.61	0.1286E-15	-15.891
1000.0	1900.0	2.7945	6.4763	4.4371	6.1569	2.9672	12.19	176.95	0.9046E-16	-16.044

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1850 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(He) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	573.8	10.3239	10.5021	11.0939	7.3604		26.33	19.14	0.7738E-11	-11.111
140.0	755.5	9.9645	10.2615	10.7640	7.2552		25.88	25.86	0.3676E-11	-11.435
150.0	913.5	9.6941	10.0851	10.5171	7.1806		25.48	31.85	0.2116E-11	-11.675
160.0	1048.7	9.4750	9.9456	10.3174	7.1235		25.12	37.20	0.1360E-11	-11.866
170.0	1164.4	9.2889	9.8298	10.1492	7.0777		24.78	41.99	0.9387E-12	-12.027
180.0	1253.3	9.1256	9.7304	10.0018	7.0358		24.46	46.30	0.6809E-12	-12.167
190.0	1348.0	8.9789	9.6430	9.9699	7.0075		24.16	50.18	0.5122E-12	-12.291
200.0	1420.5	8.8448	9.5646	9.7496	6.9754		23.86	53.70	0.3960E-12	-12.402
210.0	1482.5	8.7203	9.4930	9.6383	6.9547		23.57	56.90	0.3129E-12	-12.505
220.0	1535.6	8.6034	9.4270	9.5341	6.9325		23.29	59.83	0.2515E-12	-12.599
230.0	1580.9	8.4927	9.3653	9.4356	6.9124		23.02	62.53	0.2050E-12	-12.688
240.0	1619.8	8.3869	9.3071	9.3416	6.8939		22.75	65.02	0.1690E-12	-12.772
250.0	1653.0	8.2852	9.2519	9.2515	6.8768		22.48	67.34	0.1407E-12	-12.852
260.0	1681.5	8.1869	9.1990	9.1646	6.8609		22.22	69.51	0.1182E-12	-12.927
270.0	1705.8	8.0915	9.1482	9.0803	6.8458		21.97	71.55	0.9993E-13	-13.000
280.0	1726.6	7.9985	9.0991	8.9982	6.8316		21.71	73.48	0.8503E-13	-13.070
290.0	1744.4	7.9275	9.0513	8.9180	6.8180		21.47	75.32	0.7275E-13	-13.138
300.0	1759.7	7.8183	9.0048	8.9394	6.8050		21.23	77.07	0.6254E-13	-13.204
320.0	1783.9	7.6442	8.9148	8.6863	6.7803		20.76	80.36	0.4680E-13	-13.330
340.0	1801.6	7.4747	8.8279	8.5373	6.7569		20.32	83.42	0.3553E-13	-13.449
360.0	1814.5	7.3087	8.7434	8.3916	6.7346		19.90	86.31	0.2729E-13	-13.564
380.0	1824.0	7.1456	8.6607	8.2485	6.7131		19.50	89.06	0.2118E-13	-13.674
400.0	1831.0	6.9847	8.5794	8.1074	6.6921		19.13	91.69	0.1659E-13	-13.780
420.0	1836.1	6.8257	8.4933	7.9681	6.6716		18.78	94.21	0.1310E-13	-13.883
440.0	1839.9	6.6683	8.4202	7.8302	6.6515		18.45	96.64	0.1041E-13	-13.982
460.0	1842.5	6.5124	8.3419	7.6936	6.6317		18.15	98.99	0.8336E-14	-14.079
480.0	1844.5	6.3578	8.2643	7.5582	6.6121		17.86	101.26	0.6713E-14	-14.173
500.0	1846.0	6.2043	8.1874	7.4238	6.5927	3.1160	17.60	103.47	0.5435E-14	-14.265
520.0	1847.1	6.0519	8.1111	7.2903	6.5735	3.1109	17.35	105.62	0.4423E-14	-14.354
540.0	1847.9	5.9005	8.0353	7.1578	6.5545	3.1063	17.12	107.72	0.3617E-14	-14.442
560.0	1848.4	5.7501	7.9601	7.0261	6.5356	3.1011	16.90	109.78	0.2970E-14	-14.527
580.0	1848.9	5.6007	7.8853	6.8952	6.5169	3.0963	16.69	111.81	0.2488E-14	-14.611
600.0	1849.2	5.4521	7.8110	6.7652	6.4983	3.0915	16.50	113.83	0.2026E-14	-14.693
620.0	1849.4	5.3045	7.7371	6.6359	6.4798	3.0868	16.31	115.84	0.1682E-14	-14.774
640.0	1849.5	5.1577	7.6637	6.5074	6.4614	3.0822	16.12	117.86	0.1401E-14	-14.853
660.0	1849.7	5.0118	7.5907	6.3797	6.4431	3.0775	15.94	119.90	0.1171E-14	-14.932
680.0	1849.8	4.8667	7.5182	6.2527	6.4249	3.0730	15.75	121.99	0.9809E-15	-15.008
700.0	1849.9	4.7225	7.4461	6.1264	6.4069	3.0684	15.57	124.13	0.8240E-15	-15.084
750.0	1849.9	4.3655	7.2676	5.8138	6.3622	3.0571	15.10	129.86	0.5387E-15	-15.269
800.0	1850.0	4.0135	7.0916	5.5057	6.3182	3.0460	14.58	136.36	0.3573E-15	-15.447
850.0	1850.0	3.6664	6.9180	5.2018	6.2747	3.0351	14.00	143.96	0.2401E-15	-15.620
900.0	1850.0	3.3241	6.7469	4.9021	6.2319	3.0243	13.36	153.03	0.1635E-15	-15.787
950.0	1850.0	2.9865	6.5780	4.6065	6.1896	3.0137	12.64	164.00	0.1128E-15	-15.948
1000.0	1850.0	2.6534	6.4115	4.3150	6.1480	3.0032	11.85	177.26	0.7886E-16	-16.103

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1800 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	570.7	10.3241	10.5022	11.0940	7.3605		26.33	19.14	0.7740E-11	-11.111
140.0	754.2	9.9650	10.2622	10.7646	7.2557		25.87	25.81	0.3681E-11	-11.434
150.0	910.3	9.6950	10.0863	10.5180	7.1815		25.48	31.74	0.2121E-11	-11.674
160.0	1043.1	9.4759	9.9472	10.3189	7.1248		25.12	37.09	0.1364E-11	-11.865
170.0	1156.0	9.2897	9.8318	10.1503	7.0794		24.78	41.70	0.9414E-12	-12.026
180.0	1252.2	9.1262	9.7326	10.0028	7.0417		24.46	45.90	0.6828E-12	-12.166
190.0	1333.9	8.9790	9.6454	9.87C6	7.0097		24.15	49.68	0.5134E-12	-12.290
200.0	1403.5	8.8443	9.5669	9.7498	6.9820		23.85	53.09	0.3967E-12	-12.402
210.0	1462.7	8.7190	9.4953	9.6379	6.9574		23.55	56.19	0.3131E-12	-12.504
220.0	1513.0	8.6013	9.4291	9.5330	6.9354		23.27	59.01	0.2513E-12	-12.600
230.0	1555.9	8.4895	9.3672	9.4337	6.9154		22.99	61.61	0.2046E-12	-12.689
240.0	1592.3	8.3827	9.3087	9.3389	6.8971		22.71	64.01	0.1685E-12	-12.774
250.0	1623.3	8.2798	9.2531	9.2478	6.8801		22.44	66.24	0.1400E-12	-12.854
260.0	1649.7	8.1802	9.1998	9.1597	6.8641		22.18	68.33	0.1174E-12	-12.930
270.0	1672.1	8.0834	9.1485	9.0743	6.8491		21.92	70.29	0.9907E-13	-13.004
280.0	1691.2	7.9889	9.0988	8.9909	6.8349		21.66	72.15	0.8413E-13	-13.075
290.0	1707.4	7.8964	9.0504	8.9094	6.8212		21.41	73.92	0.7183E-13	-13.144
300.0	1721.3	7.8056	9.0033	8.8295	6.8081		21.17	75.60	0.6162E-13	-13.210
320.0	1743.0	7.6282	8.9118	8.6734	6.7832		20.69	78.78	0.4591E-13	-13.338
340.0	1758.7	7.4551	8.8233	8.5214	6.7596		20.24	81.76	0.3469E-13	-13.460
360.0	1770.1	7.2854	8.7371	8.3725	6.7370		19.81	84.56	0.2653E-13	-13.576
380.0	1778.4	7.1184	8.6526	8.2260	6.7151		19.41	87.24	0.2050E-13	-13.688
400.0	1784.4	6.9536	8.5694	8.0816	6.6938		19.03	89.80	0.1598E-13	-13.796
420.0	1788.7	6.7906	8.4874	7.9388	6.6729		18.68	92.26	0.1256E-13	-13.901
440.0	1791.8	6.6292	8.4063	7.7974	6.6523		18.35	94.63	0.9944E-14	-14.002
460.0	1794.1	6.4692	8.3261	7.6572	6.6320		18.05	96.92	0.7926E-14	-14.101
480.0	1795.7	6.3104	8.2465	7.5182	6.6119		17.76	99.15	0.6356E-14	-14.197
500.0	1796.9	6.1528	8.1675	7.3802	6.5921	3.1574	17.50	101.30	0.5125E-14	-14.290
520.0	1797.8	5.9963	8.0892	7.2431	6.5724	3.1522	17.25	103.40	0.4154E-14	-14.382
540.0	1798.4	5.8408	8.0114	7.1070	6.5529	3.1472	17.02	105.46	0.3383E-14	-14.471
560.0	1798.8	5.6863	7.9340	6.9717	6.5335	3.1422	16.80	107.48	0.2767E-14	-14.558
580.0	1799.1	5.5327	7.8572	6.8372	6.5142	3.1373	16.59	109.47	0.2272E-14	-14.644
600.0	1799.4	5.3801	7.7809	6.7036	6.4951	3.1324	16.39	111.46	0.1873E-14	-14.728
620.0	1799.6	5.2284	7.7050	6.5708	6.4761	3.1276	16.20	113.45	0.1549E-14	-14.810
640.0	1799.7	5.0776	7.6296	6.4387	6.4572	3.1228	16.01	115.46	0.1285E-14	-14.891
660.0	1799.8	4.9276	7.5546	6.3074	6.4384	3.1181	15.82	117.50	0.1070E-14	-14.971
680.0	1799.8	4.7785	7.4800	6.1769	6.4198	3.1134	15.64	119.59	0.8929E-15	-15.049
700.0	1799.9	4.6303	7.4059	6.0471	6.4012	3.1087	15.45	121.76	0.7473E-15	-15.126
750.0	1799.9	4.2634	7.2225	5.7259	6.3553	3.0971	14.95	127.60	0.4842E-15	-15.315
800.0	1800.0	3.9016	7.0416	5.4092	6.3100	3.0857	14.40	134.33	0.3183E-15	-15.497
850.0	1800.0	3.5449	6.8632	5.0969	6.2654	3.0745	13.78	142.32	0.2121E-15	-15.673
900.0	1800.0	3.1931	6.6873	4.7889	6.2214	3.0634	13.09	151.99	0.1433E-15	-15.844
950.0	1800.0	2.8461	6.5138	4.4851	6.1780	3.0525	12.31	163.76	0.9819E-16	-16.008
1000.0	1800.0	2.5038	6.3427	4.1854	6.1351	3.0417	11.48	178.08	0.6828E-16	-16.166

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1750 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.609	
130.0	570.5	10.3242	10.5024	11.0941	7.36C6	26.33	19.13	0.7743E-11	-11.111	
140.0	752.7	9.9657	10.2629	10.7653	7.25E2	25.87	25.76	0.3687E-11	-11.433	
150.0	906.8	9.6959	10.0876	10.5190	7.1824	25.48	31.62	0.2126E-11	-11.673	
160.0	1037.1	9.4769	9.9490	10.3201	7.1261	25.11	36.80	0.1368E-11	-11.864	
170.0	1147.2	9.2906	9.8339	10.1515	7.0811	24.77	41.39	0.9443E-12	-12.025	
180.0	1240.3	9.1267	9.7350	10.0038	7.0438	24.45	45.49	0.6847E-12	-12.164	
190.0	1319.1	8.9791	9.6478	9.8712	7.0122	24.13	49.15	0.5145E-12	-12.289	
200.0	1385.6	8.8437	9.5694	9.7500	6.9846	23.83	52.45	0.3973E-12	-12.401	
210.0	1441.9	8.7176	9.4977	9.6375	6.9603	23.53	55.44	0.3132E-12	-12.504	
220.0	1489.5	8.5989	9.4313	9.5318	6.9385	23.24	58.16	0.2511E-12	-12.600	
230.0	1529.8	8.4861	9.3691	9.4316	6.9186	22.96	60.66	0.2041E-12	-12.690	
240.0	1563.8	8.3780	9.3103	9.3358	6.9004	22.68	62.96	0.1678E-12	-12.775	
250.0	1592.6	8.2738	9.2542	9.2436	6.8834	22.40	65.11	0.1392E-12	-12.856	
260.0	1616.9	8.1728	9.2005	9.1543	6.8675	22.13	67.11	0.1165E-12	-12.934	
270.0	1637.4	8.0745	9.1486	9.0676	6.8525	21.87	69.00	0.9810E-13	-13.008	
280.0	1654.8	7.9784	9.0982	8.9829	6.8382	21.61	70.78	0.8313E-13	-13.080	
290.0	1669.5	7.8843	9.0492	8.9000	6.8245	21.35	72.48	0.7082E-13	-13.150	
300.0	1682.0	7.7917	9.0013	8.8186	6.8114	21.10	74.11	0.6061E-13	-13.217	
320.0	1701.4	7.6106	8.9083	8.6594	6.7862	20.62	77.18	0.4495E-13	-13.347	
340.0	1715.2	7.4337	8.8181	8.5040	6.7623	20.16	80.06	0.3380E-13	-13.471	
360.0	1725.1	7.2600	8.7300	8.3517	6.7394	19.72	82.79	0.2572E-13	-13.590	
380.0	1732.2	7.0889	8.6435	8.2016	6.7171	19.32	85.39	0.1978E-13	-13.704	
400.0	1737.3	6.9199	8.5584	8.0535	6.6953	18.93	87.89	0.1535E-13	-13.814	
420.0	1740.9	6.7526	8.4743	7.9070	6.6739	18.58	90.29	0.1200E-13	-13.921	
440.0	1743.5	6.5869	8.3911	7.7618	6.6529	18.25	92.60	0.9461E-14	-14.024	
460.0	1745.4	6.4225	8.3087	7.6179	6.6321	17.94	94.84	0.7507E-14	-14.125	
480.0	1746.7	6.2594	8.2270	7.4750	6.6115	17.66	97.01	0.5993E-14	-14.222	
500.0	1747.6	6.0974	8.1459	7.3332	6.5911	3.2016	17.39	0.4811E-14	-14.318	
520.0	1748.3	5.9365	8.0654	7.1923	6.57C9	3.1964	17.15	101.18	0.3883E-14	-14.411
540.0	1748.8	5.7767	7.9854	7.0523	6.5509	3.1912	16.91	103.19	0.3149E-14	-14.502
560.0	1749.1	5.6178	7.9059	6.9132	6.53C9	3.1862	16.69	105.17	0.2565E-14	-14.591
580.0	1749.4	5.4599	7.8269	6.7750	6.5111	3.1811	16.49	107.13	0.2097E-14	-14.678
600.0	1749.6	5.3029	7.7484	6.6376	6.4915	3.1761	16.29	109.09	0.1722E-14	-14.764
620.0	1749.7	5.1469	7.6704	6.5010	6.4719	3.1712	16.09	111.06	0.1418E-14	-14.848
640.0	1749.8	4.9918	7.5928	6.3652	6.4525	3.1663	15.90	113.06	0.1172E-14	-14.931
660.0	1749.8	4.8376	7.5157	6.2301	6.4332	3.1614	15.70	115.11	0.9717E-15	-15.012
680.0	1749.9	4.6842	7.4390	6.0959	6.4140	3.1566	15.51	117.22	0.8078E-15	-15.093
700.0	1749.9	4.5318	7.3628	5.9624	6.3950	3.1517	15.31	119.41	0.6735E-15	-15.172
750.0	1750.0	4.1544	7.1741	5.6320	6.3477	3.1398	14.79	125.41	0.4321E-15	-15.364
800.0	1750.0	3.7823	6.9880	5.3063	6.3012	3.1281	14.20	132.44	0.2815E-15	-15.551
850.0	1750.0	3.4154	6.8046	4.9850	6.2553	3.1166	13.53	140.90	0.1860E-15	-15.731
900.0	1750.0	3.0535	6.6236	4.6682	6.21C0	3.1052	12.78	151.26	0.1247E-15	-15.904
950.0	1750.0	2.6966	6.4452	4.3558	6.1653	3.0939	11.96	163.97	0.8486E-16	-16.071
1000.0	1750.0	2.3445	6.2691	4.0476	6.1213	3.0828	11.07	179.51	0.5869E-16	-16.231

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1700 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(C2) /CM ³	LOG N(O) /CM ³	LOG N(N2) /CM ³	LOG N(HE) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.609	
130.0	570.3	10.3244	10.5026	11.0943	7.3607	26.33	19.12	0.7747E-11	-11.111	
140.0	751.1	9.9663	10.2637	10.7660	7.2567	25.87	25.71	0.3693E-11	-11.433	
150.0	903.0	9.6968	10.0890	10.5201	7.1834	25.47	31.49	0.2131E-11	-11.671	
160.0	1030.5	9.4779	9.9508	10.3213	7.1276	25.11	36.57	0.1372E-11	-11.863	
170.0	1137.7	9.2914	9.8361	10.1526	7.0930	24.76	41.06	0.9472E-12	-12.024	
180.0	1227.7	9.1272	9.7374	10.0047	7.0461	24.44	45.04	0.6866E-12	-12.163	
190.0	1303.3	8.9790	9.6504	9.9718	7.0147	24.12	48.59	0.5157E-12	-12.288	
200.0	1366.8	8.8428	9.5719	9.7500	6.9875	23.81	51.78	0.3977E-12	-12.400	
210.0	1420.1	8.7158	9.5001	9.6367	6.9633	23.51	54.66	0.3132E-12	-12.504	
220.0	1464.9	8.5960	9.4335	9.5302	6.9417	23.21	57.27	0.2508E-12	-12.601	
230.0	1502.5	8.4820	9.3710	9.4290	6.9220	22.92	59.66	0.2035E-12	-12.691	
240.0	1534.1	8.3726	9.3118	9.3321	6.9038	22.64	61.88	0.1670E-12	-12.777	
250.0	1560.7	8.2669	9.2552	9.2386	6.8869	22.36	63.93	0.1383E-12	-12.859	
260.0	1583.0	8.1644	9.2009	9.1481	6.8710	22.08	65.85	0.1154E-12	-12.938	
270.0	1601.7	8.0644	9.1483	9.0600	6.8560	21.81	67.66	0.9699E-13	-13.013	
280.0	1617.4	7.9666	9.0973	8.9738	6.8416	21.55	69.38	0.8200E-13	-13.086	
290.0	1630.7	7.8707	9.0475	8.8893	6.8279	21.28	71.02	0.6968E-13	-13.157	
300.0	1641.8	7.7762	8.9989	8.8063	6.8146	21.03	72.58	0.5949E-13	-13.226	
320.0	1658.9	7.5912	8.9041	8.6437	6.7892	20.54	75.55	0.4389E-13	-13.358	
340.0	1671.0	7.4101	8.8120	8.4848	6.7650	20.07	78.34	0.3284E-13	-13.484	
360.0	1679.5	7.2321	8.7219	8.3287	6.7416	19.63	80.99	0.2486E-13	-13.604	
380.0	1685.6	7.0566	8.6333	8.1748	6.7189	19.22	83.53	0.1902E-13	-13.721	
400.0	1689.8	6.8830	8.5460	8.0228	6.6967	18.83	85.96	0.1468E-13	-13.833	
420.0	1692.8	6.7112	8.4597	7.8723	6.6748	18.47	88.31	0.1143E-13	-13.942	
440.0	1694.9	6.5409	8.3743	7.7231	6.6532	18.14	90.57	0.8962E-14	-14.048	
460.0	1696.4	6.3719	8.2096	7.5751	6.6319	17.83	92.75	0.7077E-14	-14.150	
480.0	1697.5	6.2041	8.2056	7.4282	6.6107	17.55	94.87	0.5623E-14	-14.250	
500.0	1698.2	6.0375	8.1221	7.2823	6.5958	3.2490	17.28	96.93	0.4494E-14	-14.347
520.0	1698.7	5.8720	8.0393	7.1373	6.5690	3.2436	17.04	98.94	0.3611E-14	-14.442
540.0	1699.1	5.7075	7.9570	6.9933	6.5484	3.2384	16.80	100.91	0.2915E-14	-14.535
560.0	1699.4	5.5440	7.8752	6.8501	6.5279	3.2331	16.58	102.85	0.2364E-14	-14.626
580.0	1699.6	5.3815	7.7940	6.7079	6.5075	3.2280	16.38	104.79	0.1925E-14	-14.716
600.0	1699.7	5.2199	7.7132	6.5664	6.4873	3.2229	16.17	106.72	0.1573E-14	-14.803
620.0	1699.8	5.0593	7.6329	6.4258	6.4672	3.2178	15.97	108.68	0.1290E-14	-14.889
640.0	1699.8	4.8996	7.5530	6.2860	6.4472	3.2127	15.77	110.68	0.1062E-14	-14.974
660.0	1699.9	4.7409	7.4736	6.1471	6.4273	3.2077	15.58	112.74	0.8766E-15	-15.057
680.0	1699.9	4.5830	7.3947	6.0089	6.4076	3.2027	15.37	114.88	0.7257E-15	-15.139
700.0	1699.9	4.4261	7.3162	5.8715	6.3880	3.1978	15.17	117.12	0.6025E-15	-15.220
750.0	1700.0	4.0376	7.1220	5.5314	6.3393	3.1855	14.61	123.32	0.3827E-15	-15.417
800.0	1700.0	3.6546	6.9305	5.1960	6.2914	3.1735	13.98	130.71	0.2469E-15	-15.607
850.0	1700.0	3.2769	6.7416	4.8654	6.2442	3.1616	13.26	139.75	0.1617E-15	-15.791
900.0	1700.0	2.9044	6.5554	4.5392	6.1975	3.1498	12.45	150.92	0.1076E-15	-15.968
950.0	1700.0	2.5370	6.3717	4.2176	6.1516	3.1383	11.56	164.73	0.7273E-16	-16.138
1000.0	1700.0	2.1745	6.1904	3.9003	6.1062	3.1268	10.63	181.65	0.5006E-16	-16.301

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1650 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	569.9	10.3247	10.5028	11.0946	7.3609		26.33	19.11	0.7751E-11	-11.111
140.0	749.1	9.9671	10.2647	10.7668	7.2574		25.87	25.64	0.3700E-11	-11.432
150.0	898.6	9.6978	10.3905	10.5212	7.1846		25.47	31.34	0.2137E-11	-11.670
160.0	1023.2	9.4789	9.9529	10.3225	7.1293		25.10	36.32	0.1376E-11	-11.861
170.0	1127.2	9.2922	9.8385	10.1538	7.0851		24.76	40.70	0.9501E-12	-12.022
180.0	1214.0	9.1274	9.7400	10.0056	7.0486		24.42	44.56	0.6885E-12	-12.162
190.0	1286.3	8.9785	9.6530	9.8721	7.0175		24.10	47.99	0.5166E-12	-12.287
200.0	1346.7	8.8415	9.5745	9.7496	6.9905		23.79	51.06	0.3980E-12	-12.400
210.0	1397.0	8.7135	9.5025	9.6356	6.9666		23.48	53.82	0.3130E-12	-12.504
220.0	1439.0	8.5925	9.4356	9.5280	6.9451		23.18	56.33	0.2502E-12	-12.602
230.0	1474.0	8.4771	9.3727	9.4257	6.9255		22.89	58.63	0.2026E-12	-12.693
240.0	1503.2	8.3662	9.3130	9.3276	6.9074		22.60	60.74	0.1659E-12	-12.780
250.0	1527.5	8.2589	9.2559	9.2328	6.8905		22.31	62.71	0.1371E-12	-12.863
260.0	1547.9	8.1547	9.2009	9.1408	6.8746		22.03	64.55	0.1142E-12	-12.943
270.0	1564.8	8.0529	9.1476	9.0511	6.8595		21.75	66.29	0.9570E-13	-13.019
280.0	1578.9	7.9532	9.0958	8.9623	6.8451		21.48	67.94	0.8069E-13	-13.093
290.0	1590.7	7.8552	9.0452	8.8772	6.8313		21.21	69.51	0.6839E-13	-13.165
300.0	1600.6	7.7588	8.9956	8.7924	6.8179		20.95	71.03	0.5823E-13	-13.235
320.0	1615.6	7.5694	8.8989	8.6261	6.7922		20.45	73.90	0.4273E-13	-13.369
340.0	1626.1	7.3838	8.8047	8.4633	6.7676		19.97	76.61	0.3179E-13	-13.498
360.0	1633.4	7.2012	8.7125	8.3032	6.7438		19.53	79.18	0.2393E-13	-13.621
380.0	1638.4	7.0209	8.6216	8.1452	6.7205		19.11	81.65	0.1821E-13	-13.740
400.0	1641.9	6.8426	8.5320	7.9889	6.6978		18.72	84.03	0.1398E-13	-13.854
420.0	1644.4	6.6658	8.4433	7.8341	6.6753		18.36	86.31	0.1083E-13	-13.966
440.0	1646.1	6.4906	8.3555	7.6806	6.6532		18.02	88.52	0.8446E-14	-14.073
460.0	1647.3	6.3166	8.2683	7.5283	6.6313		17.72	90.65	0.6636E-14	-14.178
480.0	1648.1	6.1439	8.1819	7.3770	6.6095		17.43	92.72	0.5247E-14	-14.280
500.0	1648.7	5.9723	8.0960	7.2268	6.5880	3.2996	17.17	94.73	0.4173E-14	-14.380
520.0	1649.1	5.8018	8.0107	7.0775	6.5666	3.2942	16.92	96.69	0.3337E-14	-14.477
540.0	1649.4	5.6324	7.9259	6.9292	6.5454	3.2888	16.69	98.62	0.2681E-14	-14.572
560.0	1649.6	5.4640	7.8417	6.7818	6.5243	3.2834	16.47	100.53	0.2164E-14	-14.665
580.0	1649.7	5.2966	7.7580	6.6352	6.5023	3.2781	16.26	102.44	0.1754E-14	-14.756
600.0	1649.8	5.1302	7.6748	6.4895	6.4825	3.2728	16.05	104.36	0.1427E-14	-14.846
620.0	1649.9	4.9647	7.5920	6.3446	6.4618	3.2676	15.85	106.32	0.1165E-14	-14.934
640.0	1649.9	4.8002	7.5098	6.2006	6.4412	3.2624	15.64	108.33	0.9547E-15	-15.020
660.0	1649.9	4.6367	7.4280	6.0574	6.4207	3.2572	15.44	110.41	0.7846E-15	-15.105
680.0	1649.9	4.4740	7.3467	5.9151	6.4004	3.2521	15.23	112.59	0.6468E-15	-15.189
700.0	1650.0	4.3124	7.2658	5.7735	6.3801	3.2470	15.01	114.89	0.5346E-15	-15.272
750.0	1650.0	3.9121	7.0657	5.4231	6.3301	3.2344	14.41	121.35	0.3360E-15	-15.474
800.0	1650.0	3.5175	6.8684	5.0776	6.2807	3.2220	13.72	129.19	0.2146E-15	-15.668
850.0	1650.0	3.1283	6.6738	4.7369	6.2320	3.2097	12.94	138.91	0.1393E-15	-15.856
900.0	1650.0	2.7445	6.4819	4.4009	6.1840	3.1976	12.07	151.05	0.9194E-16	-16.037
950.0	1650.0	2.3660	6.2926	4.0695	6.1366	3.1857	11.12	166.15	0.6178E-16	-16.209
1000.0	1650.0	1.9926	6.1059	3.7426	6.0859	3.1739	10.15	184.64	0.4235E-16	-16.373

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1600 DEGREES

HEIGHT KM.	TEMP DEG K	LOG N(C2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	569.2	10.3250	10.5033	11.0950	7.3612		26.33	19.09	0.7758E-11	-11.110
140.0	746.6	9.9679	10.2658	10.7676	7.2582		25.87	25.56	0.3708E-11	-11.431
150.0	893.5	9.6988	10.0923	10.5224	7.1859		25.47	31.16	0.2143E-11	-11.669
160.0	1015.0	9.4798	9.9551	10.3238	7.1311		25.10	36.04	0.1380E-11	-11.860
170.0	1115.7	9.2927	9.8410	10.1548	7.0874		24.75	40.29	0.9529E-12	-12.021
180.0	1199.0	9.1274	9.7427	10.0062	7.0512		24.41	44.04	0.6900E-12	-12.161
190.0	1268.0	9.9777	9.6557	9.8721	7.0205		24.08	47.35	0.5172E-12	-12.286
200.0	1325.2	8.8396	9.5771	9.7488	6.9937		23.77	50.29	0.3980E-12	-12.400
210.0	1372.4	8.7103	9.5048	9.6338	6.9700		23.45	52.94	0.3124E-12	-12.505
220.0	1411.6	8.5830	9.4375	9.5251	6.9486		23.15	55.35	0.2492E-12	-12.603
230.0	1444.0	8.4711	9.3741	9.4216	6.9291		22.84	57.54	0.2014E-12	-12.696
240.0	1470.9	8.3585	9.3139	9.3220	6.9111		22.55	59.56	0.1645E-12	-12.784
250.0	1493.1	8.2495	9.2561	9.2257	6.8942		22.25	61.45	0.1356E-12	-12.868
260.0	1511.5	8.1433	9.2034	9.1321	6.8783		21.97	63.21	0.1126E-12	-12.948
270.0	1526.7	8.0395	9.1463	9.0407	6.8632		21.68	64.88	0.9416E-13	-13.026
280.0	1539.3	7.9377	9.0936	8.9512	6.8487		21.40	66.46	0.7917E-13	-13.101
290.0	1549.8	7.8376	9.0421	8.8631	6.8347		21.13	67.98	0.6691E-13	-13.175
300.0	1558.4	7.7389	8.9915	8.7764	6.8211		20.87	69.44	0.5680E-13	-13.246
320.0	1571.5	7.5448	8.8926	8.6061	6.7951		20.35	72.22	0.4143E-13	-13.383
340.0	1580.5	7.3544	8.7962	8.4390	6.7700		19.87	74.85	0.3064E-13	-13.514
360.0	1586.6	7.1667	8.7015	8.2745	6.7457		19.41	77.36	0.2293E-13	-13.640
380.0	1590.8	6.9813	8.6082	8.1121	6.7219		18.99	79.76	0.1734E-13	-13.761
400.0	1593.7	6.7978	8.5161	7.9513	6.6986		18.60	82.09	0.1324E-13	-13.878
420.0	1595.7	6.6158	8.4248	7.7919	6.6755		18.24	84.31	0.1020E-13	-13.992
440.0	1597.0	6.4353	8.3344	7.6338	6.6528		17.90	86.46	0.7914E-14	-14.102
460.0	1598.0	6.2560	8.2446	7.4769	6.6302		17.60	88.54	0.6185E-14	-14.209
480.0	1598.6	6.0780	8.1555	7.3210	6.6079		17.31	90.56	0.4865E-14	-14.313
500.0	1599.0	5.9012	8.0670	7.1662	6.5857	3.3539	17.05	92.52	0.3850E-14	-14.415
520.0	1599.3	5.7254	7.9791	7.0123	6.5636	3.3482	16.80	94.44	0.3063E-14	-14.514
540.0	1599.6	5.5507	7.8918	6.8593	6.5418	3.3427	16.57	96.33	0.2449E-14	-14.611
560.0	1599.7	5.3771	7.8049	6.7073	6.5200	3.3372	16.35	98.22	0.1967E-14	-14.706
580.0	1599.8	5.2045	7.7186	6.5562	6.4984	3.3317	16.13	100.10	0.1587E-14	-14.800
600.0	1599.9	5.0328	7.6328	6.4059	6.4769	3.3263	15.92	102.02	0.1285E-14	-14.891
620.0	1599.9	4.8622	7.5475	6.2566	6.4556	3.3209	15.71	103.98	0.1044E-14	-14.981
640.0	1599.9	4.6926	7.4626	6.1081	6.4343	3.3156	15.50	106.00	0.8512E-15	-15.070
660.0	1600.0	4.5239	7.3783	5.9604	6.4132	3.3102	15.29	108.13	0.6963E-15	-15.157
680.0	1600.0	4.3562	7.2945	5.8136	6.3922	3.3050	15.06	110.36	0.5712E-15	-15.243
700.0	1600.0	4.1895	7.2111	5.6676	6.3714	3.2997	14.83	112.75	0.4700E-15	-15.328
750.0	1600.0	3.7768	7.0047	5.3063	6.3197	3.2867	14.18	119.55	0.2922E-15	-15.534
800.0	1600.0	3.3698	6.8012	4.9500	6.2688	3.2739	13.44	127.94	0.1847E-15	-15.734
850.0	1600.0	2.9685	6.6006	4.5986	6.2186	3.2612	12.59	138.49	0.1188E-15	-15.925
900.0	1600.0	2.5727	6.4027	4.2521	6.1691	3.2488	11.65	151.78	0.7781E-16	-16.109
950.0	1600.0	2.1823	6.2075	3.9104	6.1202	3.2365	10.65	168.35	0.5199E-16	-16.284
1000.0	1600.0	1.7972	6.0150	3.5733	6.0721	3.2243	9.63	188.60	0.3552E-16	-16.449

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1550 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.9808	11.6221	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	558.3	10.3255	10.5039	11.0955	7.3616		26.33	19.56	0.7769E-11	-11.110
140.0	743.5	9.3688	10.2672	10.7687	7.2592		25.97	25.45	0.3717E-11	-11.430
150.0	887.4	9.6998	10.0942	10.5236	7.1875		25.46	30.96	0.2150E-11	-11.668
160.0	1005.7	9.4806	9.9575	10.3249	7.1332		25.09	35.72	0.1385E-11	-11.859
170.0	1102.9	9.2930	9.8436	10.1557	7.0959		24.74	39.85	0.9554E-12	-12.020
180.0	1182.7	9.1269	9.7454	10.0265	7.0541		24.39	43.46	0.6912E-12	-12.160
190.0	1248.2	8.9762	9.6583	9.8716	7.0237		24.06	46.65	0.5174E-12	-12.286
200.0	1332.1	8.8369	9.5795	9.7474	6.9971		23.74	49.48	0.3975E-12	-12.401
210.0	1346.3	8.7062	9.5069	9.6312	6.9736		23.42	52.01	0.3114E-12	-12.507
220.0	1382.7	8.5923	9.4392	9.5213	6.9524		23.11	54.31	0.2479E-12	-12.626
230.0	1412.5	8.4636	9.3752	9.4163	6.9329		22.80	56.40	0.1998E-12	-12.699
240.0	1437.1	8.3492	9.3143	9.3151	6.9149		22.49	58.34	0.1628E-12	-12.788
250.0	1457.2	8.2382	9.2557	9.2172	6.8980		22.19	60.14	0.1338E-12	-12.874
260.0	1473.8	8.1299	9.1991	9.1218	6.8821		21.90	61.83	0.110RE-12	-12.955
270.0	1487.4	8.0239	9.1441	9.0285	6.8668		21.61	63.43	0.9235E-13	-13.035
280.0	1498.6	7.9198	9.0904	8.9369	6.8522		21.32	64.95	0.7740E-13	-13.111
290.0	1507.7	7.8172	9.0378	8.8468	6.8380		21.04	66.42	0.6521E-13	-13.186
300.0	1515.3	7.7160	8.9862	8.7579	6.8243		20.77	67.83	0.5519E-13	-13.258
320.0	1526.6	7.5169	8.8850	8.5832	6.7978		20.25	70.52	0.3999E-13	-13.398
340.0	1534.2	7.3212	8.7863	8.4116	6.7722		19.75	73.08	0.2938E-13	-13.532
360.0	1539.3	7.1281	8.6888	8.2423	6.7474		19.29	75.52	0.2185E-13	-13.660
380.0	1542.8	6.9371	8.5928	8.0751	6.7230		18.87	77.87	0.1643E-13	-13.784
400.0	1545.1	6.7480	8.4979	7.9094	6.6990		18.47	80.12	0.1247E-13	-13.904
420.0	1546.7	6.5604	8.4039	7.7451	6.6753		18.11	82.30	0.9544E-14	-14.020
440.0	1547.8	6.3742	8.3107	7.5821	6.6519		17.78	84.40	0.7365E-14	-14.133
460.0	1548.5	6.1893	8.2181	7.4202	6.6286		17.47	86.43	0.5724E-14	-14.242
480.0	1549.0	6.0057	8.1262	7.2594	6.6056		17.19	88.39	0.4478E-14	-14.349
500.0	1549.3	5.8232	8.0349	7.0996	6.5827	3.4119	16.92	90.31	0.3525E-14	-14.453
520.0	1549.5	5.6418	7.9442	6.9408	6.5600	3.4062	16.68	92.19	0.2789E-14	-14.554
540.0	1549.7	5.4615	7.8540	6.7829	6.5374	3.4004	16.44	94.05	0.2219E-14	-14.654
560.0	1549.9	5.2823	7.7644	6.6260	6.5150	3.3948	16.22	95.90	0.1773E-14	-14.751
580.0	1549.9	5.1041	7.6753	6.4701	6.4927	3.3891	16.00	97.78	0.1423E-14	-14.847
600.0	1549.9	4.9270	7.5867	6.3150	6.4705	3.3836	15.79	99.69	0.1146E-14	-14.941
620.0	1549.9	4.7509	7.4987	6.1608	6.4404	3.3780	15.57	101.67	0.9265E-15	-15.033
640.0	1550.0	4.5758	7.4111	6.0075	6.4265	3.3725	15.35	103.73	0.7917E-15	-15.124
660.0	1550.0	4.4017	7.3241	5.8551	6.4047	3.3670	15.12	105.91	0.6118E-15	-15.213
680.0	1550.0	4.2286	7.2375	5.7035	6.3831	3.3615	14.88	108.23	0.4995E-15	-15.301
700.0	1550.0	4.0565	7.1515	5.5529	6.3616	3.3561	14.63	110.72	0.4090E-15	-15.388
750.0	1550.0	3.6304	6.9384	5.1799	6.3092	3.3427	13.93	117.94	0.2513E-15	-15.600
800.0	1550.0	3.2103	6.7284	4.8121	6.2557	3.3294	13.11	127.02	0.1572E-15	-15.803
850.0	1550.0	2.7960	6.5213	4.4494	6.2038	3.3164	12.19	138.57	0.1002E-15	-15.999
900.0	1550.0	2.3875	6.3170	4.0917	6.1527	3.3035	11.18	153.21	0.6516E-16	-16.186
950.0	1550.0	1.9845	6.1155	3.7389	6.1023	3.2908	10.13	171.48	0.4334E-16	-16.363
1000.0	1550.0	1.5870	5.9167	3.3907	6.0526	3.2783	9.09	193.67	0.2955E-16	-16.529

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
 EXOSPHERIC TEMPERATURE = 1500 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(He) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.609	
130.0	566.9	10.3262	10.5048	11.0963	7.3622	26.33	19.01	0.7781E-11	-11.109	
140.0	739.6	9.9698	10.2688	10.7698	7.2605	25.87	25.32	0.3727E-11	-11.429	
150.0	880.4	9.7008	10.0965	10.5249	7.1854	25.46	30.72	0.2156E-11	-11.666	
160.0	995.0	9.4812	9.9601	10.3260	7.1356	25.08	35.35	0.1389E-11	-11.857	
170.0	1088.5	9.2928	9.8464	10.1563	7.0927	24.72	39.35	0.9574E-12	-12.019	
180.0	1164.7	9.1257	9.7482	10.0063	7.0573	24.37	42.84	0.6918E-12	-12.160	
190.0	1226.7	8.9738	9.6609	9.8705	7.0271	24.04	45.89	0.5170E-12	-12.286	
200.0	1277.3	8.8331	9.5818	9.7451	7.0038	23.71	48.60	0.3963E-12	-12.402	
210.0	1318.5	8.7008	9.5088	9.6276	6.9774	23.38	51.03	0.3098E-12	-12.509	
220.0	1352.1	8.5751	9.4404	9.5162	6.9563	23.06	53.22	0.2460E-12	-12.609	
230.0	1379.5	8.4545	9.3758	9.4095	6.9369	22.74	55.22	0.1977E-12	-12.704	
240.0	1401.8	8.3379	9.3140	9.3066	6.9189	22.43	57.07	0.1606E-12	-12.794	
250.0	1420.0	8.2246	9.2546	9.2067	6.9019	22.12	58.79	0.1316E-12	-12.881	
260.0	1434.8	8.1140	9.1970	9.1093	6.8858	21.82	60.41	0.1086E-12	-12.964	
270.0	1446.9	8.0055	9.1409	9.0139	6.8705	21.52	61.95	0.9021E-13	-13.045	
280.0	1456.7	7.8988	9.0861	8.9201	6.8557	21.23	63.41	0.7535E-13	-13.123	
290.0	1464.7	7.7937	9.0324	8.8277	6.8413	20.94	64.83	0.6326E-13	-13.199	
300.0	1471.2	7.6898	8.9794	8.7365	6.8274	20.67	66.19	0.5334E-13	-13.273	
320.0	1480.9	7.4850	8.8757	8.5570	6.8003	20.13	68.80	0.3839E-13	-13.416	
340.0	1487.3	7.2836	8.7740	8.3803	6.7742	19.63	71.29	0.2801E-13	-13.553	
360.0	1491.6	7.0846	8.6739	8.2060	6.7487	19.16	73.67	0.2069E-13	-13.684	
380.0	1494.4	6.8877	8.5750	8.0335	6.7237	18.73	75.96	0.1545E-13	-13.811	
400.0	1496.3	6.6925	8.4772	7.8626	6.6990	18.34	78.17	0.1166E-13	-13.933	
420.0	1497.5	6.4989	8.3802	7.6930	6.6746	17.97	80.29	0.8868E-14	-14.052	
440.0	1498.4	6.3067	8.2839	7.5247	6.6504	17.64	82.33	0.6802E-14	-14.167	
460.0	1498.9	6.1157	8.1884	7.3575	6.6264	17.33	84.30	0.5256E-14	-14.279	
480.0	1499.3	5.9260	8.0935	7.1914	6.6026	17.05	86.22	0.4089E-14	-14.388	
500.0	1499.5	5.7375	7.9992	7.0263	6.5790	3.4742	16.79	88.09	0.3200E-14	-14.495
520.0	1499.7	5.5501	7.9054	6.8623	6.5555	3.4682	16.55	89.93	0.2518E-14	-14.599
540.0	1499.8	5.3638	7.8123	6.6992	6.5322	3.4623	16.31	91.76	0.1992E-14	-14.701
560.0	1499.9	5.1786	7.7197	6.5371	6.5090	3.4565	16.08	93.60	0.1583E-14	-14.801
580.0	1499.9	4.9945	7.6276	6.3759	6.4860	3.4507	15.86	95.47	0.1263E-14	-14.899
600.0	1499.9	4.8115	7.5361	6.2157	6.4631	3.4449	15.64	97.40	0.1012E-14	-14.995
620.0	1500.0	4.6295	7.4451	6.0563	6.4403	3.4392	15.41	99.40	0.8139E-15	-15.089
640.0	1500.0	4.4486	7.3547	5.8979	6.4177	3.4335	15.18	101.52	0.6568E-15	-15.183
660.0	1500.0	4.2687	7.2647	5.7405	6.3952	3.4278	14.93	103.78	0.5318E-15	-15.274
680.0	1500.0	4.0898	7.1753	5.5839	6.3728	3.4221	14.67	106.21	0.4319E-15	-15.365
700.0	1500.0	3.9120	7.0863	5.4282	6.3505	3.4165	14.40	108.85	0.3519E-15	-15.454
750.0	1500.0	3.4717	6.8662	5.0427	6.2954	3.4027	13.63	116.60	0.2136E-15	-15.670
800.0	1500.0	3.0376	6.6492	4.6627	6.2411	3.3890	12.74	126.52	0.1322E-15	-15.879
850.0	1500.0	2.6096	6.4351	4.2879	6.1876	3.3755	11.74	139.27	0.8352E-16	-16.078
900.0	1500.0	2.1874	6.2240	3.9183	6.1347	3.3622	10.66	155.51	0.5396E-16	-16.268
950.0	1500.0	1.7710	6.0158	3.5538	6.0826	3.3491	9.56	175.70	0.3577E-16	-16.447
1000.0	1500.0	1.3602	5.8105	3.1942	6.0312	3.3361	8.52	199.97	0.2439E-16	-16.613

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1450 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	565.1	10.3271	10.5059	11.0972	7.3630		26.33	18.95	0.7799E-11	-11.108
140.0	734.8	9.9709	10.2708	10.7712	7.2620		25.86	25.16	0.3739E-11	-11.427
150.0	872.0	9.7017	10.0990	10.5262	7.1915		25.45	30.44	0.2163E-11	-11.665
160.0	982.9	9.4814	9.9629	10.3269	7.1382		25.07	34.94	0.1392E-11	-11.856
170.0	1072.5	9.2921	9.8493	10.1565	7.0958		24.70	38.80	0.9588E-12	-12.018
180.0	1144.9	9.1238	9.7509	10.0056	7.0607		24.35	42.15	0.6916E-12	-12.160
190.0	1203.4	8.9705	9.6634	9.8686	7.0308		24.01	45.08	0.5158E-12	-12.288
200.0	1250.7	8.8280	9.5838	9.7418	7.0047		23.67	47.67	0.3944E-12	-12.404
210.0	1289.0	8.6939	9.5102	9.6228	6.9814		23.33	49.98	0.3075E-12	-12.512
220.0	1319.9	8.5661	9.4412	9.5096	6.9603		23.00	52.07	0.2434E-12	-12.614
230.0	1344.8	8.4432	9.3757	9.4010	6.9409		22.68	53.98	0.1950E-12	-12.710
240.0	1365.0	8.3242	9.3130	9.2961	6.9229		22.36	55.75	0.1578E-12	-12.802
250.0	1381.3	8.2084	9.2525	9.1940	6.9058		22.04	57.40	0.1289E-12	-12.890
260.0	1394.5	8.0952	9.1938	9.0943	6.8896		21.73	58.95	0.1060E-12	-12.975
270.0	1405.1	7.9840	9.1365	8.9966	6.8741		21.42	60.43	0.8770E-13	-13.057
280.0	1413.7	7.8745	9.0804	8.9004	6.8590		21.13	61.85	0.7298E-13	-13.137
290.0	1420.7	7.7664	9.0253	8.8055	6.8445		20.83	63.21	0.6103E-13	-13.214
300.0	1426.3	7.6595	8.9710	8.7117	6.8302		20.55	64.53	0.5127E-13	-13.290
320.0	1434.5	7.4487	8.8644	8.5268	6.8026		20.00	67.07	0.3662E-13	-13.436
340.0	1439.9	7.2410	8.7597	8.3448	6.7758		19.50	69.50	0.2653E-13	-13.576
360.0	1443.4	7.0356	8.6565	8.1649	6.7496		19.02	71.82	0.1946E-13	-13.711
380.0	1445.7	6.8323	8.5545	7.9868	6.7238		18.59	74.06	0.1443E-13	-13.841
400.0	1447.2	6.6306	8.4535	7.8102	6.6984		18.19	76.20	0.1081E-13	-13.966
420.0	1448.2	6.4305	8.3532	7.6349	6.6732		17.83	78.27	0.8173E-14	-14.088
440.0	1448.8	6.2317	8.2538	7.4609	6.6482		17.50	80.25	0.6230E-14	-14.206
460.0	1449.2	6.0343	8.1550	7.2880	6.6235		17.19	82.18	0.4784E-14	-14.320
480.0	1449.5	5.8381	8.0568	7.1163	6.5989		16.91	84.04	0.3699E-14	-14.432
500.0	1449.7	5.6431	7.9593	6.9455	6.5745	3.5409	16.65	85.87	0.2878E-14	-14.541
520.0	1449.8	5.4493	7.8624	6.7758	6.5502	3.5348	16.41	87.68	0.2251E-14	-14.648
540.0	1449.9	5.2566	7.7660	6.6072	6.5261	3.5287	16.17	89.49	0.1770E-14	-14.752
560.0	1449.9	5.0650	7.6702	6.4395	6.5021	3.5226	15.94	91.31	0.1399E-14	-14.854
580.0	1449.9	4.8746	7.5750	6.2727	6.4783	3.5166	15.71	93.19	0.1110E-14	-14.955
600.0	1450.0	4.6853	7.4804	6.1070	6.4546	3.5107	15.47	95.14	0.8840E-15	-15.054
620.0	1450.0	4.4970	7.3862	5.9422	6.4310	3.5047	15.23	97.20	0.7068E-15	-15.151
640.0	1450.0	4.3099	7.2927	5.7783	6.4076	3.4988	14.98	99.40	0.5672E-15	-15.246
660.0	1450.0	4.1238	7.1996	5.6154	6.3843	3.4930	14.72	101.77	0.4567E-15	-15.340
680.0	1450.0	3.9387	7.1071	5.4534	6.3612	3.4871	14.44	104.34	0.3689E-15	-15.433
700.0	1450.0	3.7548	7.0151	5.2923	6.3381	3.4813	14.14	107.17	0.2990E-15	-15.524
750.0	1450.0	3.2993	6.7874	4.8936	6.2812	3.4670	13.29	115.59	0.1793E-15	-15.746
800.0	1450.0	2.8503	6.5628	4.5005	6.2250	3.4528	12.31	126.54	0.1098E-15	-15.960
850.0	1450.0	2.4074	6.3414	4.1128	6.1696	3.4389	11.23	140.75	0.6875E-16	-16.163
900.0	1450.0	1.9707	6.1231	3.7304	6.1149	3.4251	10.09	158.84	0.4419E-16	-16.355
950.0	1450.0	1.5399	5.9077	3.3533	6.0610	3.4116	8.97	181.16	0.2924E-16	-16.534
1000.0	1450.0	1.1150	5.6952	2.9813	6.0078	3.3982	7.93	207.55	0.1999E-16	-16.699

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1400 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(C2) /CM ³	LOG N(O) /CM ³	LOG N(N ₂) /CM ³	LOG N(He) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.609	
130.0	562.6	10.3283	10.5074	11.0985	7.3641	26.33	18.87	0.7822E-11	-11.137	
140.0	729.0	9.9722	10.2731	10.7727	7.2639	25.86	24.96	0.3753E-11	-11.426	
150.0	862.3	9.7025	10.1018	10.5275	7.1940	25.44	30.11	0.2171E-11	-11.663	
160.0	969.1	9.4813	9.9659	10.3276	7.1413	25.05	34.47	0.1396E-11	-11.855	
170.0	1054.7	9.2908	9.8522	10.1562	7.0992	24.68	38.19	0.0594E-12	-12.018	
180.0	1123.3	9.1210	9.7536	10.0041	7.0644	24.32	41.41	0.6905E-12	-12.161	
190.0	1178.3	8.9658	9.6657	9.8657	7.0348	23.97	44.21	0.5136E-12	-12.289	
200.0	1222.3	8.8214	9.5855	9.7373	7.0088	23.62	46.68	0.3916E-12	-12.407	
210.0	1257.6	8.6853	9.5111	9.6164	6.9856	23.28	48.89	0.3043E-12	-12.517	
220.0	1285.9	8.5548	9.4412	9.5012	6.9645	22.94	50.87	0.2400E-12	-12.620	
230.0	1308.6	8.4294	9.3767	9.3904	6.9451	22.61	52.69	0.1916E-12	-12.718	
240.0	1326.7	8.3078	9.3109	9.2832	6.9269	22.28	54.38	0.1545E-12	-12.811	
250.0	1341.3	8.1891	9.2492	9.1787	6.9097	21.95	55.96	0.1256E-12	-12.901	
260.0	1353.0	8.0729	9.1892	9.0765	6.8933	21.63	57.46	0.1029E-12	-12.988	
270.0	1362.3	7.9587	9.1306	8.9761	6.8775	21.32	58.88	0.8479E-13	-13.072	
280.0	1369.8	7.9460	9.0731	8.8772	6.8623	21.01	60.25	0.7027E-13	-13.153	
290.0	1375.8	7.7348	9.0165	8.7796	6.8474	20.71	61.58	0.5853E-13	-13.233	
300.0	1380.6	7.6246	8.9607	8.6830	6.8329	20.42	62.86	0.4897E-13	-13.310	
320.0	1387.5	7.4072	8.8509	8.4923	6.8046	19.86	65.34	0.3469E-13	-13.460	
340.0	1392.0	7.1926	8.7429	8.3043	6.7771	19.35	67.70	0.2494E-13	-13.603	
360.0	1394.9	6.9804	8.6363	8.1184	6.7501	18.87	69.97	0.1815E-13	-13.741	
380.0	1396.7	6.7701	8.5309	7.9342	6.7235	18.43	72.14	0.1337E-13	-13.874	
400.0	1397.9	6.5614	8.4264	7.7515	6.6972	18.04	74.23	0.9942E-14	-14.003	
420.0	1398.6	6.3543	8.3227	7.5701	6.6711	17.68	76.24	0.7465E-14	-14.127	
440.0	1399.1	6.1485	8.2197	7.3899	6.6453	17.35	78.18	0.5652E-14	-14.248	
460.0	1399.4	5.9441	8.1175	7.2110	6.6197	17.05	80.04	0.4312E-14	-14.365	
480.0	1399.6	5.7409	9.0159	7.0331	6.5942	16.77	81.86	0.3313E-14	-14.480	
500.0	1399.8	5.5390	7.9149	6.8563	6.5690	16.51	83.65	0.2561E-14	-14.592	
520.0	1399.9	5.3383	7.8145	6.6806	6.5438	16.26	85.43	0.1991E-14	-14.701	
540.0	1399.9	5.1387	7.7147	6.5059	6.5189	16.02	87.27	0.1556E-14	-14.808	
560.0	1399.9	4.9403	7.6155	6.3322	6.4940	15.937	89.05	0.1221E-14	-14.913	
580.0	1400.0	4.7431	7.5169	6.1595	6.4693	15.874	90.95	0.9631E-15	-15.016	
600.0	1400.0	4.5470	7.4188	5.9878	6.4448	15.813	92.95	0.7625E-15	-15.118	
620.0	1400.0	4.3521	7.3214	5.8172	6.4204	15.751	95.09	0.6060E-15	-15.218	
640.0	1400.0	4.1582	7.2244	5.6475	6.3962	15.690	97.76	0.4834E-15	-15.316	
660.0	1400.0	3.9655	7.1281	5.4787	6.3720	15.629	99.91	0.3869E-15	-15.412	
680.0	1400.0	3.7738	7.0322	5.3109	6.3481	15.569	102.68	0.3108E-15	-15.508	
700.0	1400.0	3.5833	6.9370	5.1441	6.3242	15.509	105.74	0.2505E-15	-15.601	
750.0	1400.0	3.1116	6.7011	4.7312	6.2652	15.360	115.02	0.1483E-15	-15.829	
800.0	1400.0	2.6465	6.4686	4.3240	6.2070	15.214	118.82	0.8986E-16	-16.046	
850.0	1400.0	2.1878	6.2392	3.9224	6.1496	15.069	120.66	143.17	0.5587E-16	
900.0	1400.0	1.7355	6.0131	3.5264	6.0930	15.027	163.38	0.3578E-16	-16.446	
950.0	1400.0	1.2894	5.7900	3.1358	6.0372	15.086	187.98	0.2369E-16	-16.625	
1000.0	1400.0	0.8493	5.5700	2.7506	5.9821	15.048	216.39	0.1628E-16	-16.788	

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued

EXOSPHERIC TEMPERATURE = 1350 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	559.5	10.3298	10.5094	11.1001	7.3655		26.32	18.76	0.7851E-11	-11.105
140.0	721.9	9.9736	10.2759	10.7745	7.2661		25.85	24.73	0.3769E-11	-11.424
150.0	851.0	9.7031	10.1050	10.5288	7.1969		25.43	29.72	0.2178E-11	-11.662
160.0	953.5	9.4807	9.9691	10.3279	7.1447		25.04	33.94	0.1398E-11	-11.855
170.0	1035.0	9.2887	9.8553	10.1553	7.1030		24.66	37.52	0.9589E-12	-12.018
180.0	1099.7	9.1170	9.7562	10.0018	7.0685		24.29	40.59	0.6882E-12	-12.162
190.0	1151.2	8.9597	9.6677	9.8616	7.0390		23.93	43.27	0.5103E-12	-12.292
200.0	1192.0	8.8129	9.5867	9.7312	7.0131		23.57	45.62	0.3877E-12	-12.412
210.0	1224.5	8.6740	9.5114	9.6081	6.9900		23.22	47.72	0.3001E-12	-12.523
220.0	1250.3	8.5410	9.4404	9.4906	6.9689		22.87	49.62	0.2357E-12	-12.628
230.0	1270.8	8.4127	9.3727	9.3774	6.9493		22.52	51.36	0.1874E-12	-12.727
240.0	1287.1	8.2880	9.3076	9.2675	6.9310		22.18	52.98	0.1504E-12	-12.823
250.0	1300.0	8.1662	9.2445	9.1603	6.9136		21.85	54.50	0.1218E-12	-12.914
260.0	1310.3	8.0467	9.1831	9.0553	6.8969		21.52	55.94	0.9929E-13	-13.003
270.0	1318.4	7.9291	9.1229	8.9520	6.8809		21.19	57.32	0.8146E-13	-13.089
280.0	1324.9	7.8130	9.0638	8.8501	6.8653		20.88	58.64	0.6721E-13	-13.173
290.0	1330.1	7.6982	9.0056	8.7494	6.8501		20.57	59.93	0.5573E-13	-13.254
300.0	1334.2	7.5845	8.9480	8.6497	6.8352		20.28	61.18	0.4642E-13	-13.333
320.0	1340.0	7.3597	8.8347	8.4527	6.8062		19.71	63.59	0.3261E-13	-13.487
340.0	1343.7	7.1378	8.7231	8.2582	6.7778		19.19	65.90	0.2324E-13	-13.634
360.0	1346.0	6.9180	8.6129	8.0657	6.7459		18.71	68.11	0.1678E-13	-13.775
380.0	1347.5	6.7002	8.5037	7.8749	6.7224		18.27	70.23	0.1226E-13	-13.911
400.0	1348.4	6.4840	8.3955	7.6856	6.6952		17.87	72.26	0.9054E-14	-14.043
420.0	1349.0	6.2693	8.2880	7.4976	6.6683		17.52	74.21	0.6749E-14	-14.171
440.0	1349.4	6.0560	8.1813	7.3109	6.6415		17.19	76.09	0.5074E-14	-14.295
460.0	1349.6	5.8440	8.0753	7.1253	6.6150		16.89	77.91	0.3845E-14	-14.415
480.0	1349.7	5.6334	7.9700	6.9409	6.5886		16.61	79.68	0.2934E-14	-14.533
500.0	1349.8	5.4240	7.8653	6.7576	6.5624	3.6895	16.35	81.43	0.2253E-14	-14.647
520.0	1349.9	5.2159	7.7612	6.5754	6.5363	3.6830	16.10	83.19	0.1739E-14	-14.760
540.0	1349.9	5.0089	7.6577	6.3942	6.5104	3.6764	15.85	84.98	0.1350E-14	-14.870
560.0	1350.0	4.8032	7.5548	6.2141	6.4847	3.6700	15.61	86.83	0.1053E-14	-14.978
580.0	1350.0	4.5987	7.4526	6.0350	6.4591	3.6635	15.35	88.77	0.8248E-15	-15.084
600.0	1350.0	4.3953	7.3509	5.8570	6.4336	3.6571	15.09	90.85	0.6488E-15	-15.188
620.0	1350.0	4.1931	7.2498	5.6800	6.4083	3.6507	14.81	93.09	0.5123E-15	-15.290
640.0	1350.0	3.9921	7.1493	5.5049	6.3832	3.6444	14.51	95.55	0.4061E-15	-15.391
660.0	1350.0	3.7922	7.0494	5.3290	6.3582	3.6381	14.19	98.26	0.3231E-15	-15.491
680.0	1350.0	3.5935	6.9500	5.1550	6.3323	3.6318	13.85	101.27	0.2579E-15	-15.588
700.0	1350.0	3.3959	6.8512	4.9820	6.3086	3.6256	13.48	104.65	0.2067E-15	-15.685
750.0	1350.0	2.9067	6.6066	4.5538	6.2474	3.6102	12.44	114.99	0.1208E-15	-15.918
800.0	1350.0	2.4244	6.3654	4.1315	6.1870	3.5950	11.27	128.77	0.7250E-16	-16.140
850.0	1350.0	1.9488	6.1276	3.7151	6.1275	3.5800	10.03	146.74	0.4481E-16	-16.349
900.0	1350.0	1.4797	5.8931	3.3044	6.0688	3.5652	8.81	169.31	0.2866E-16	-16.543
950.0	1350.0	1.0170	5.6617	2.8994	6.0109	3.5507	7.71	196.20	0.1905E-16	-16.720
1000.0	1350.0	0.5606	5.4335	2.4998	5.9538	3.5363	6.77	226.31	0.1321E-16	-16.879

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
 EXOSPHERIC TEMPERATURE = 1300 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(C2) /CM ³	LOG N(O) /CM ³	LOG N(N2) /CM ³	LOG N(HE) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	555.6	10.3316	10.5118	11.1020	7.3672		26.32	18.63	0.7887E-11	-11.103
140.0	713.5	9.9751	10.2792	10.7764	7.2668		25.85	24.45	0.3787E-11	-11.422
150.0	838.0	9.7035	10.1085	10.5269	7.2003		25.42	29.29	0.2186E-11	-11.660
160.0	936.1	9.4795	9.9725	10.3279	7.1485		25.01	33.34	0.1399E-11	-11.854
170.0	1013.3	9.2855	9.8583	10.1537	7.1072		24.63	36.78	0.9570E-12	-12.019
180.0	1074.1	9.1116	9.7586	9.9981	7.0729		24.25	39.72	0.6845E-12	-12.165
190.0	1122.1	8.9517	9.6693	9.8560	7.0435		23.87	42.26	0.5056E-12	-12.296
200.0	1159.8	8.8022	9.5873	9.7233	7.0177		23.51	44.51	0.3825E-12	-12.417
210.0	1189.6	8.6603	9.5109	9.5977	6.9945		23.14	46.51	0.2947E-12	-12.531
220.0	1213.0	8.5242	9.4386	9.4775	6.9733		22.78	48.32	0.2304E-12	-12.637
230.0	1231.5	8.3926	9.3695	9.3615	6.9535		22.43	49.99	0.1823E-12	-12.739
240.0	1246.0	8.2645	9.3029	9.2486	6.9350		22.07	51.54	0.1456E-12	-12.837
250.0	1257.5	8.1391	9.2382	9.1384	6.9173		21.73	53.00	0.1173E-12	-12.931
260.0	1266.5	8.0159	9.1751	9.0302	6.9004		21.39	54.39	0.9518E-13	-13.021
270.0	1273.6	7.8946	9.1132	8.9236	6.8840		21.06	55.73	0.7771E-13	-13.110
280.0	1279.2	7.7747	9.0523	8.8185	6.8681		20.73	57.02	0.6380E-13	-13.195
290.0	1283.6	7.6560	8.9922	8.7144	6.8525		20.42	58.27	0.5264E-13	-13.279
300.0	1287.1	7.5384	8.9328	8.6112	6.8372		20.12	59.49	0.4364E-13	-13.360
320.0	1292.0	7.3056	8.8156	8.4073	6.8072		19.54	61.84	0.3037E-13	-13.518
340.0	1295.0	7.0756	8.7001	8.2058	6.7779		19.01	64.09	0.2146E-13	-13.668
360.0	1296.9	6.8477	8.5858	8.0062	6.7491		18.53	66.25	0.1537E-13	-13.813
380.0	1298.1	6.6217	8.4726	7.8083	6.7206		18.09	68.31	0.1114E-13	-13.953
400.0	1298.8	6.3973	8.3603	7.6118	6.6924		17.70	70.28	0.8158E-14	-14.088
420.0	1299.3	6.1745	8.2488	7.4167	6.6645		17.35	72.17	0.6035E-14	-14.219
440.0	1299.5	5.9530	8.1380	7.2228	6.6367		17.02	73.99	0.4504E-14	-14.346
460.0	1299.7	5.7330	8.0280	7.0301	6.6052		16.73	75.76	0.3388E-14	-14.470
480.0	1299.8	5.5143	7.9186	6.8386	6.5818		16.45	77.59	0.2566E-14	-14.591
500.0	1299.9	5.2968	7.8099	6.6483	6.5546	3.7724	16.19	79.22	0.1956E-14	-14.709
520.0	1299.9	5.0807	7.7018	6.4591	6.5275	3.7655	15.93	80.97	0.1500E-14	-14.824
540.0	1300.0	4.8658	7.5943	6.2709	6.5006	3.7588	15.67	82.77	0.1156E-14	-14.937
560.0	1300.0	4.6522	7.4875	6.0839	6.4739	3.7520	15.41	84.66	0.8949E-15	-15.048
580.0	1300.0	4.4398	7.3813	5.8980	6.4473	3.7453	15.14	86.67	0.6961E-15	-15.157
600.0	1300.0	4.2286	7.2757	5.7131	6.4209	3.7387	14.86	88.86	0.5437E-15	-15.265
620.0	1300.0	4.0187	7.1708	5.5293	6.3946	3.7321	14.55	91.25	0.4264E-15	-15.370
640.0	1300.0	3.8099	7.0664	5.3465	6.3685	3.7255	14.22	93.91	0.3357E-15	-15.474
660.0	1300.0	3.6023	6.9626	5.1648	6.3425	3.7189	13.86	96.88	0.2654E-15	-15.576
680.0	1300.0	3.3960	6.8594	4.9841	6.3167	3.7124	13.48	100.22	0.2106E-15	-15.677
700.0	1300.0	3.1907	6.7568	4.8045	6.2910	3.7060	13.06	103.99	0.1678E-15	-15.775
750.0	1300.0	2.6828	6.5028	4.3597	6.2275	3.6900	11.91	115.68	0.9688E-16	-16.014
800.0	1300.0	2.1819	6.2524	3.9212	6.1648	3.6742	10.64	131.35	0.5762E-16	-16.239
850.0	1300.0	1.6879	6.0054	3.4888	6.1030	3.6586	9.34	151.68	0.3548E-16	-16.450
900.0	1300.0	1.2008	5.7618	3.0623	6.0421	3.6433	8.13	176.75	0.2274E-16	-16.643
950.0	1300.0	0.7204	5.5216	2.6417	5.9819	3.6281	7.08	205.74	0.1523E-16	-16.817
1000.0	1300.0	0.2464	5.2846	2.2268	5.9226	3.6132	6.23	236.91	0.1069E-16	-16.971

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1250 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.9751	10.8808	11.6221	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	550.8	13.3337	13.5148	11.1344	7.3653		26.32	18.43	0.7930E-11	-11.101
140.0	703.8	9.9767	10.2830	10.7786	7.2720		25.84	24.12	0.3807E-11	-11.419
150.0	823.3	9.7036	10.1124	10.5310	7.2041		25.49	28.79	0.2193E-11	-11.659
160.0	916.6	9.4776	9.9761	10.3274	7.1528		24.99	32.69	0.1430E-11	-11.854
170.0	989.6	9.2812	9.8613	10.1512	7.1117		24.59	35.97	0.9535E-12	-12.021
180.0	1046.5	9.1045	9.7608	9.9935	7.0776		24.20	38.77	0.6791E-12	-12.168
190.0	1091.1	9.9417	9.6703	9.8487	7.0483		23.82	41.23	0.4992E-12	-12.302
200.0	1125.8	8.7889	9.5871	9.7123	7.0224		23.43	43.33	0.3758E-12	-12.425
210.0	1153.0	8.6436	9.5093	9.5848	6.9991		23.06	45.24	0.2881E-12	-12.540
220.0	1174.2	8.5039	9.4355	9.4615	6.9777		22.68	46.98	0.2241E-12	-12.650
230.0	1190.8	8.3686	9.3648	9.3423	6.9578		22.32	48.57	0.1763E-12	-12.754
240.0	1203.7	8.2346	9.2964	9.2261	6.9389		21.95	50.37	0.1401E-12	-12.854
250.0	1213.9	8.1073	9.2299	9.1124	6.9229		21.60	51.48	0.1122E-12	-12.950
260.0	1221.8	7.9800	9.1649	9.0007	6.9036		21.25	52.83	0.9055E-13	-13.043
270.0	1227.9	7.8545	9.1011	8.8906	6.8868		20.90	54.12	0.7353E-13	-13.134
280.0	1232.8	7.7304	9.0382	8.7817	6.8705		20.57	55.38	0.6005E-13	-13.221
290.0	1236.5	7.6075	9.0760	8.6739	6.8544		20.25	56.60	0.4929E-13	-13.307
300.0	1239.5	7.4855	8.9145	8.5670	6.8387		19.94	57.79	0.4066E-13	-13.391
320.0	1243.6	7.2441	8.7931	8.3554	6.8077		19.36	60.09	0.2802E-13	-13.553
340.0	1246.1	7.0052	8.6732	8.1462	6.7774		18.83	62.28	0.1961E-13	-13.708
360.0	1247.6	6.7685	8.5546	7.9389	6.7475		18.34	64.38	0.1392E-13	-13.856
380.0	1248.5	6.5336	8.4370	7.7322	6.7180		17.91	66.39	0.9999E-14	-14.000
400.0	1249.1	6.3004	8.3203	7.5290	6.6887		17.52	68.30	0.7265E-14	-14.139
420.0	1249.5	6.0687	8.2044	7.3261	6.6596		17.17	70.13	0.5331E-14	-14.273
440.0	1249.7	5.8384	8.0892	7.1246	6.6308		16.85	71.89	0.3947E-14	-14.404
460.0	1249.3	5.6096	7.9748	6.9242	6.6021		16.55	73.61	0.2946E-14	-14.531
480.0	1249.9	5.3821	7.8610	6.7251	6.5737		16.28	75.31	0.2214E-14	-14.655
500.0	1249.9	5.1560	7.7480	6.5271	6.5454	3.8616	16.01	77.02	0.1674E-14	-14.776
520.0	1250.0	4.9312	7.6356	6.3303	6.5172	3.8545	15.74	78.78	0.1274E-14	-14.895
540.0	1250.0	4.7078	7.5238	6.1347	6.4893	3.8474	15.47	80.61	0.9741E-15	-15.011
560.0	1250.0	4.4856	7.4127	5.9402	6.4615	3.8404	15.20	82.57	0.7486E-15	-15.126
580.0	1250.0	4.2647	7.3023	5.7468	6.4338	3.8335	14.90	84.69	0.5779E-15	-15.238
600.0	1250.0	4.0451	7.1925	5.5546	6.4064	3.8265	14.58	87.03	0.4480E-15	-15.349
620.0	1250.0	3.8268	7.0833	5.3634	6.3790	3.8197	14.24	89.63	0.3489E-15	-15.457
640.0	1250.0	3.6096	6.9748	5.1733	6.3519	3.8128	13.87	92.56	0.2728E-15	-15.564
660.0	1250.0	3.3938	6.8668	4.9843	6.3249	3.8060	13.47	95.87	0.2142E-15	-15.669
680.0	1250.0	3.1791	6.7595	4.7964	6.2980	3.7993	13.03	99.63	0.1689E-15	-15.772
700.0	1250.0	2.9657	6.6528	4.6096	6.2713	3.7925	12.57	103.91	0.1338E-15	-15.874
750.0	1250.0	2.4374	6.3887	4.1471	6.2052	3.7759	11.29	117.28	0.7635E-16	-16.117
800.0	1250.0	1.9165	6.1282	3.6910	6.1400	3.7595	9.93	135.22	0.4511E-16	-16.346
850.0	1250.0	1.4028	5.8713	3.2413	6.0758	3.7433	8.61	158.17	0.2776E-16	-16.557
900.0	1250.0	0.8962	5.6180	2.7978	6.0124	3.7273	7.44	185.71	0.1790E-16	-16.747
950.0	1250.0	0.3965	5.3682	2.3603	5.9498	3.7116	6.47	216.28	0.1214E-16	-16.916
1000.0	1250.0	-0.0964	5.1218	1.9288	5.8882	3.6961	5.73	247.55	0.8667E-17	-17.062

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
 EXOSPHERIC TEMPERATURE = 1200 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.609	
130.0	545.2	10.3363	10.5183	11.1072	7.3719	26.32	18.29	0.7982E-11	-11.098	
140.0	692.5	9.9785	10.2874	10.7810	7.2757	25.83	23.75	0.3830E-11	-11.417	
150.0	896.7	9.7034	10.1167	10.5319	7.2085	25.38	28.23	0.2199E-11	-11.858	
160.0	895.2	9.4749	9.9799	10.3262	7.1575	24.96	31.96	0.1398E-11	-11.854	
170.0	963.8	9.2755	9.8641	10.1476	7.1167	24.55	35.09	0.9480E-12	-12.023	
180.0	1017.0	9.0955	9.7625	9.9872	7.0826	24.14	37.76	0.6717E-12	-12.173	
190.0	1058.1	8.9292	9.6707	9.8394	7.0533	23.75	40.07	0.4911E-12	-12.309	
200.0	1090.1	8.7727	9.5860	9.7008	7.0273	23.35	42.11	0.3675E-12	-12.435	
210.0	1114.8	8.6235	9.5065	9.5690	7.0038	22.96	43.93	0.2801E-12	-12.553	
220.0	1134.0	8.4797	9.4310	9.4422	6.9822	22.57	45.59	0.2165E-12	-12.664	
230.0	1148.8	8.3401	9.3583	9.3193	6.9619	22.19	47.13	0.1693E-12	-12.771	
240.0	1160.3	8.2038	9.2880	9.1994	6.9427	21.81	48.57	0.1337E-12	-12.874	
250.0	1169.3	8.0700	9.2195	9.0819	6.9243	21.45	49.93	0.1065E-12	-12.973	
260.0	1176.2	7.9383	9.1523	8.9662	6.9066	21.08	51.24	0.8542E-13	-13.068	
270.0	1181.5	7.8082	9.0863	8.8521	6.8893	20.73	52.51	0.6896E-13	-13.161	
280.0	1185.7	7.6794	9.0211	8.7392	6.8724	20.39	53.73	0.5599E-13	-13.252	
290.0	1188.9	7.5518	8.9567	8.6273	6.8559	20.07	54.92	0.4570E-13	-13.340	
300.0	1191.4	7.4251	8.8929	8.5162	6.8396	19.75	56.09	0.3749E-13	-13.426	
320.0	1194.8	7.1741	8.7668	8.2963	6.8076	19.16	58.33	0.2557E-13	-13.592	
340.0	1196.9	6.9256	8.6422	8.0787	6.7761	18.62	60.47	0.1772E-13	-13.752	
360.0	1198.1	6.6792	8.5188	7.8629	6.7451	18.14	62.51	0.1245E-13	-13.905	
380.0	1198.9	6.4347	8.3963	7.6488	6.7143	17.71	64.45	0.8868E-14	-14.052	
400.0	1199.3	6.1918	8.2748	7.4362	6.6839	17.33	66.30	0.6397E-14	-14.195	
420.0	1199.6	5.9505	8.1541	7.2249	6.6536	16.98	68.07	0.4647E-14	-14.333	
440.0	1199.8	5.7107	8.0342	7.0150	6.6236	16.67	69.78	0.3411E-14	-14.467	
460.0	1199.9	5.4724	7.9150	6.8063	6.5937	16.37	71.46	0.2524E-14	-14.598	
480.0	1199.9	5.2355	7.7966	6.5989	6.5641	16.09	73.13	0.1881E-14	-14.726	
500.0	1199.9	4.9999	7.6788	6.3927	6.5346	15.81	74.85	0.1411E-14	-14.850	
520.0	1200.0	4.7658	7.5617	6.1877	6.5053	15.54	76.63	0.1064E-14	-14.973	
540.0	1200.0	4.5330	7.4453	5.9839	6.4762	15.25	78.53	0.8073E-15	-15.093	
560.0	1200.0	4.3016	7.3296	5.7813	6.4472	15.00	80.59	0.6153E-15	-15.211	
580.0	1200.0	4.0715	7.2146	5.5799	6.4184	14.62	82.87	0.4711E-15	-15.327	
600.0	1200.0	3.8428	7.1002	5.3796	6.3898	14.26	85.43	0.3624E-15	-15.441	
620.0	1200.0	3.6153	6.9865	5.1805	6.3614	13.88	88.31	0.2801E-15	-15.553	
640.0	1200.0	3.3892	6.8734	4.9825	6.3331	13.46	91.60	0.2174E-15	-15.663	
660.0	1200.0	3.1643	6.7610	4.7856	6.3049	13.00	95.36	0.1696E-15	-15.771	
680.0	1200.0	2.9407	6.6492	4.5899	6.2770	12.51	99.66	0.1329E-15	-15.877	
700.0	1200.0	2.7184	6.5380	4.3953	6.2491	11.99	104.58	0.1047E-15	-15.980	
750.0	1200.0	2.1681	6.2628	3.9135	6.1803	10.59	120.05	0.5913E-16	-16.228	
800.0	1200.0	1.6255	5.9915	3.4384	6.1124	9.17	140.62	0.3481E-16	-16.458	
850.0	1200.0	1.0904	5.7240	2.9700	6.0454	3.8346	7.86	166.34	0.2151E-16	-16.667
900.0	1200.0	0.5626	5.4601	2.5080	5.9794	3.8180	6.77	195.99	0.1403E-16	-16.853
950.0	1200.0	0.0421	5.1999	2.0523	5.9143	3.8016	5.92	227.23	0.9682E-17	-17.014
1000.0	1200.0	-0.4713	4.9432	1.6028	5.8500	3.7854	5.29	257.36	0.7050E-17	-17.152

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1150 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.699
130.0	538.6	10.3393	10.5224	11.1105	7.3749		26.31	18.07	0.8044E-11	-11.095
140.0	679.7	9.9803	10.2924	10.7836	7.2759		25.81	23.32	0.3855E-11	-11.414
150.0	788.3	9.7027	10.1214	10.5326	7.2133		25.36	27.62	0.2205E-11	-11.657
160.0	871.8	9.4711	9.9837	10.3243	7.1627		24.92	31.17	0.1395E-11	-11.856
170.0	936.0	9.2681	9.8668	10.1428	7.1220		24.50	34.15	0.9403E-12	-12.027
180.0	985.4	9.3843	9.7637	9.9791	7.0980		24.08	36.69	0.6621E-12	-12.179
190.0	1023.4	8.9139	9.6703	9.8279	7.0585		23.66	38.89	0.4809E-12	-12.318
200.0	1052.7	8.7531	9.5838	9.6856	7.0324		23.25	40.83	0.3576E-12	-12.447
210.0	1075.1	8.5994	9.5024	9.5499	7.0086		22.85	42.57	0.2706E-12	-12.568
220.0	1092.4	8.4510	9.4247	9.4191	6.9866		22.45	44.17	0.2078E-12	-12.682
230.0	1105.7	8.3067	9.3499	9.2921	6.9659		22.05	45.65	0.1614E-12	-12.792
240.0	1115.9	8.1655	9.2773	9.1680	6.9463		21.66	47.04	0.1266E-12	-12.897
250.0	1123.8	8.0267	9.2064	9.0461	6.9274		21.28	48.37	0.1002E-12	-12.999
260.0	1129.9	7.8900	9.1369	8.9261	6.9092		20.90	49.65	0.7982E-13	-13.098
270.0	1134.5	7.7548	9.0684	8.8075	6.8914		20.54	50.88	0.6403E-13	-13.194
280.0	1138.1	7.6209	9.0007	8.6901	6.8739		20.20	52.08	0.5167E-13	-13.287
290.0	1140.8	7.4880	8.9338	8.5737	6.8568		19.86	53.25	0.4192E-13	-13.378
300.0	1142.9	7.3561	8.8675	8.4581	6.8399		19.54	54.38	0.3419E-13	-13.466
320.0	1145.8	7.2946	8.7361	8.2290	6.8066		18.94	56.57	0.2355E-13	-13.637
340.0	1147.5	6.8356	8.6063	8.0022	6.7739		18.41	58.66	0.1581E-13	-13.801
360.0	1148.5	6.5787	8.4777	7.7772	6.7416		17.93	60.63	0.1100E-13	-13.958
380.0	1149.1	6.3237	8.3500	7.5539	6.7055		17.51	62.50	0.7759E-14	-14.110
400.0	1149.5	6.3703	9.2233	7.3321	6.6778		17.13	64.28	0.5536E-14	-14.257
420.0	1149.7	5.8186	8.0974	7.1117	6.6462		16.79	65.99	0.3990E-14	-14.399
440.0	1149.8	5.5684	7.9723	6.8926	6.6149		16.47	67.66	0.2903E-14	-14.537
460.0	1149.9	5.3197	7.8479	6.6749	6.5838		16.18	69.30	0.2128E-14	-14.672
480.0	1149.9	5.0725	7.7243	6.4585	6.5528		15.89	70.98	0.1572E-14	-14.804
500.0	1150.0	4.8267	7.6014	6.2434	6.5221	4.0619	15.60	72.71	0.1168E-14	-14.932
520.0	1150.0	4.5824	7.4793	6.0295	6.4915	4.0542	15.30	74.55	0.8733E-15	-15.059
540.0	1150.0	4.3395	7.3578	5.8168	6.4611	4.0465	14.99	76.56	0.6564E-15	-15.183
560.0	1150.0	4.0980	7.2371	5.6054	6.4309	4.0389	14.65	78.78	0.4959E-15	-15.305
580.0	1150.0	3.8579	7.1170	5.3952	6.4009	4.0313	14.28	81.29	0.3765E-15	-15.424
600.0	1150.0	3.6192	6.9977	5.1862	6.3710	4.0238	13.88	84.14	0.2872E-15	-15.542
620.0	1150.0	3.3819	6.8790	4.9784	6.3413	4.0163	13.44	87.40	0.2202E-15	-15.657
640.0	1150.0	3.1459	6.7610	4.7718	6.3118	4.0089	12.96	91.17	0.1697E-15	-15.770
660.0	1150.0	2.9113	6.6437	4.5664	6.2824	4.0015	12.44	95.52	0.1315E-15	-15.881
680.0	1150.0	2.6780	6.5270	4.3622	6.2532	3.9942	11.89	100.52	0.1024E-15	-15.990
700.0	1150.0	2.4460	6.4110	4.1591	6.2242	3.9869	11.31	106.26	0.8029E-16	-16.095
750.0	1150.0	1.8717	6.1239	3.6564	6.1523	3.9688	9.81	124.27	0.4501E-16	-16.347
800.0	1150.0	1.3055	5.8408	3.1607	6.0815	3.9509	8.36	147.80	0.2652E-16	-16.576
850.0	1150.0	0.7472	5.5616	2.6718	6.0116	3.9333	7.12	176.13	0.1655E-16	-16.781
900.0	1150.0	0.1965	5.2863	2.1897	5.9427	3.9160	6.14	207.09	0.1098E-16	-16.959
950.0	1150.0	-0.3466	5.0147	1.7142	5.8748	3.8989	5.42	237.71	0.7747E-17	-17.111
1000.0	1150.0	-0.8824	4.7469	1.2452	5.8078	3.8820	4.92	265.37	0.5767E-17	-17.239

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
 EXOSPHERIC TEMPERATURE = 1100 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(C2) /CM ³	LOG N(C) /CM ³	LOG N(N2) /CM ³	LOG N(He) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.699	
130.0	531.0	10.3427	10.5272	11.1142	7.3783	26.31	17.82	0.8115E-11	-11.091	
140.0	665.4	9.922	10.2979	10.7864	7.2847	25.80	22.84	0.3882E-11	-11.411	
150.0	768.1	9.7016	10.1265	10.5330	7.2188	25.33	26.94	0.2210E-11	-11.656	
160.0	846.5	9.4661	9.9876	10.3216	7.1684	24.88	30.32	0.1389E-11	-11.857	
170.0	916.4	9.2589	9.8692	10.1365	7.1278	24.44	33.15	0.9300E-12	-12.032	
180.0	952.1	9.2706	9.7644	9.9690	7.0937	24.00	35.56	0.6501E-12	-12.187	
190.0	987.0	8.8994	9.6690	9.8137	7.0640	23.57	37.66	0.4687E-12	-12.329	
200.0	1013.7	8.7297	9.5803	9.6671	7.0375	23.14	39.51	0.3458E-12	-12.461	
210.0	1034.1	8.5709	9.4966	9.5270	7.0134	22.72	41.18	0.2597E-12	-12.586	
220.0	1049.7	8.4172	9.4165	9.3917	6.9909	22.30	42.72	0.1979E-12	-12.704	
230.0	1061.6	8.2675	9.3392	9.2600	6.9698	21.89	44.15	0.1526E-12	-12.817	
240.0	1073.6	8.1209	9.2640	9.1311	6.9496	21.48	45.50	0.1188E-12	-12.925	
250.0	1077.6	7.9766	9.1905	9.0045	6.9302	21.09	46.80	0.9328E-13	-13.030	
260.0	1082.9	7.8342	9.1182	8.8796	6.9113	20.70	48.05	0.7381E-13	-13.132	
270.0	1096.9	7.6934	9.0470	8.7561	6.8929	20.33	49.25	0.5880E-13	-13.231	
280.0	1093.0	7.5538	8.9766	8.6337	6.8748	19.98	50.42	0.4713E-13	-13.327	
290.0	1092.4	7.4152	8.9068	8.5123	6.8570	19.64	51.57	0.3800E-13	-13.420	
300.0	1094.2	7.2776	8.8377	8.3917	6.8394	19.31	52.68	0.3080E-13	-13.512	
320.0	1095.6	7.3046	8.7007	8.1526	6.8048	18.71	54.81	0.2052E-13	-13.688	
340.0	1098.0	6.7340	8.5651	7.9156	6.7707	18.18	56.83	0.1392E-13	-13.856	
360.0	1098.8	6.4556	8.4307	7.6806	6.7369	17.71	58.74	0.9583E-14	-14.019	
380.0	1099.3	6.1990	9.2973	7.4472	6.7035	17.29	60.54	0.6688E-14	-14.175	
400.0	1099.6	5.9342	8.1649	7.2153	6.6703	16.92	62.25	0.4724E-14	-14.326	
420.0	1099.8	5.6711	8.0333	6.9850	6.6373	16.58	63.91	0.3371E-14	-14.472	
440.0	1099.9	5.4095	7.9025	6.7560	6.6046	16.27	65.53	0.2428E-14	-14.615	
460.0	1099.9	5.1495	7.7725	6.5284	6.5720	15.97	67.16	0.1763E-14	-14.754	
480.0	1100.0	4.8911	7.6433	6.3021	6.5397	15.67	68.85	0.1289E-14	-14.890	
500.0	1100.0	4.6342	7.5148	6.0772	6.5075	4.1746	15.36	0.9485E-15	-15.023	
520.0	1100.0	4.3788	7.3871	5.8536	6.4756	4.1665	15.04	72.59	0.7021E-15	-15.154
540.0	1100.0	4.1248	7.2601	5.6313	6.4438	4.1585	14.68	74.76	0.5227E-15	-15.282
560.0	1100.0	3.8724	7.1339	5.4103	6.4122	4.1526	14.30	77.21	0.3911E-15	-15.408
580.0	1100.0	3.6214	7.0084	5.1905	6.3808	4.1427	13.88	80.03	0.2943E-15	-15.531
600.0	1100.0	3.3718	6.8836	4.9720	6.3496	4.1348	13.41	83.28	0.2226E-15	-15.653
620.0	1100.0	3.1237	6.7595	4.7548	6.3185	4.1270	12.90	87.07	0.1693E-15	-15.771
640.0	1100.0	2.8770	6.6362	4.5388	6.2877	4.1192	12.35	91.47	0.1295E-15	-15.888
660.0	1100.0	2.6317	6.5135	4.3241	6.2570	4.1115	11.77	96.58	0.9971E-16	-16.001
680.0	1100.0	2.3878	6.3916	4.1105	6.2265	4.1038	11.15	102.48	0.7728E-16	-16.112
700.0	1100.0	2.1452	6.2793	3.8982	6.1961	4.0962	10.52	109.25	0.6034E-16	-16.219
750.0	1100.0	1.5449	5.9702	3.3726	6.1210	4.0772	8.95	130.26	0.3372E-16	-16.472
800.0	1100.0	0.2530	5.6742	2.8544	6.0469	4.0586	7.54	156.84	0.2001E-16	-16.699
850.0	1100.0	0.3692	5.3823	2.3433	5.9739	4.0402	6.40	187.19	0.1270E-16	-16.896
900.0	1100.0	-0.2065	5.0945	1.8393	5.9019	4.0221	5.57	218.18	0.8626E-17	-17.064
950.0	1100.0	-0.7743	4.8106	1.3422	5.8308	4.0042	5.00	246.66	0.6238E-17	-17.205
1000.0	1100.0	-1.3344	4.5305	0.8519	5.7607	3.9865	4.61	270.74	0.4750E-17	-17.323

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1050 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	522.5	10.3466	10.5327	11.1185	7.3823		26.30	17.54	0.8197E-11	-11.086
140.0	649.6	9.9841	10.3041	10.7893	7.2961		25.78	22.31	0.3911E-11	-11.408
150.0	746.1	9.6997	10.1319	10.5329	7.2248		25.30	26.20	0.2213E-11	-11.655
160.0	819.3	9.4598	9.9916	10.3178	7.1746		24.83	29.49	0.1381E-11	-11.860
170.0	874.9	9.2476	9.8712	10.1285	7.134C		24.37	32.09	0.9169E-12	-12.038
180.0	917.1	9.0541	9.7642	9.9565	7.0997		23.92	34.38	0.6354E-12	-12.197
190.0	949.1	8.8734	9.6664	9.7965	7.0697		23.46	36.37	0.4541E-12	-12.343
200.0	973.4	8.7020	9.5752	9.6450	7.0428		23.02	38.15	0.3321E-12	-12.479
210.0	991.9	8.5373	9.4888	9.4999	7.0181		22.57	39.76	0.2473E-12	-12.607
220.0	1005.9	8.3777	9.4060	9.3594	6.9952		22.14	41.24	0.1868E-12	-12.729
230.0	1016.5	8.2220	9.3258	9.2225	6.9734		21.71	42.63	0.1428E-12	-12.845
240.0	1024.6	8.0692	9.2477	9.0893	6.9526		21.28	43.95	0.1103E-12	-12.957
250.0	1030.7	7.9188	9.1712	8.9563	6.9325		20.88	45.22	0.8592E-13	-13.066
260.0	1035.4	7.7701	9.0959	8.8259	6.9129		20.48	46.44	0.6747E-13	-13.171
270.0	1038.9	7.6230	9.0216	8.6969	6.8938		20.10	47.62	0.5335E-13	-13.273
280.0	1041.6	7.4771	8.9481	8.5691	6.8750		19.74	48.77	0.4246E-13	-13.372
290.0	1043.6	7.3323	8.8753	8.4421	6.8564		19.39	49.88	0.3400E-13	-13.469
300.0	1045.1	7.1883	8.8030	8.3160	6.8381		19.07	50.96	0.2737E-13	-13.563
320.0	1047.2	6.9026	8.6597	8.0657	6.8019		18.47	53.04	0.1801E-13	-13.744
340.0	1048.4	6.6193	8.5178	7.8177	6.7663		17.94	54.99	0.1207E-13	-13.918
360.0	1049.1	6.3382	8.3771	7.5716	6.73C9		17.48	56.82	0.8216E-14	-14.085
380.0	1049.5	6.0590	8.2374	7.3271	6.6959		17.07	58.55	0.5671E-14	-14.246
400.0	1049.7	5.7817	8.0987	7.0843	6.6612		16.70	60.20	0.3962E-14	-14.492
420.0	1049.8	5.5060	7.9608	6.8430	6.6267		16.37	61.81	0.2797E-14	-14.553
440.0	1049.9	5.2320	7.8238	6.6031	6.5924		16.05	63.41	0.1992E-14	-14.701
460.0	1049.9	4.9597	7.6877	6.3647	6.5583		15.74	65.05	0.1431E-14	-14.844
480.0	1050.0	4.6889	7.5523	6.1276	6.5244		15.42	66.79	0.1035E-14	-14.985
500.0	1050.0	4.4198	7.4177	5.8920	6.49C7	4.2969	15.08	68.68	0.7533E-15	-15.123
520.0	1050.0	4.1522	7.2839	5.6578	6.4572	4.2885	14.72	70.79	0.5518E-15	-15.258
540.0	1050.0	3.8862	7.1509	5.4249	6.4240	4.2801	14.32	73.20	0.4065E-15	-15.391
560.0	1050.0	3.6217	7.0187	5.1933	6.3909	4.2718	13.87	75.98	0.3012E-15	-15.521
580.0	1050.0	3.3588	6.8872	4.9631	6.3580	4.2635	13.38	79.24	0.2245E-15	-15.649
600.0	1050.0	3.0973	6.7565	4.7342	6.3252	4.2552	12.84	83.05	0.1683E-15	-15.774
620.0	1050.0	2.8374	6.6265	4.5067	6.2927	4.2470	12.25	87.53	0.1270E-15	-15.896
640.0	1050.0	2.5789	6.4973	4.2804	6.2604	4.2389	11.63	92.77	0.9652E-16	-16.015
660.0	1050.0	2.3219	6.3688	4.0554	6.2282	4.23C8	10.97	98.87	0.7391E-16	-16.131
680.0	1050.0	2.0664	6.2410	3.8317	6.1963	4.2228	10.30	105.90	0.5707E-16	-16.244
700.0	1050.0	1.8123	6.1140	3.6093	6.1645	4.2148	9.63	113.92	0.4447E-16	-16.352
750.0	1050.0	1.1834	5.7995	3.0587	6.0858	4.1949	8.05	138.28	0.2492E-16	-16.603
800.0	1050.0	0.5633	5.4894	2.5157	6.0082	4.1754	6.73	167.58	0.1501E-16	-16.824
850.0	1050.0	-0.0483	5.1837	1.9804	5.9317	4.1561	5.76	198.76	0.9763E-17	-17.010
900.0	1050.0	-0.6514	4.8821	1.4524	5.8562	4.1371	5.09	228.13	0.6823E-17	-17.166
950.0	1050.0	-1.2462	4.5847	0.9316	5.7818	4.1184	4.65	253.14	0.5065E-17	-17.295
1000.0	1050.0	-1.8330	4.2913	0.4179	5.7084	4.0999	4.37	273.06	0.3937E-17	-17.405

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 1000 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(C2) /CM ³	LOG N(O) /CM ³	LOG N(N2) /CM ³	LOG N(HE) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315	26.90	11.62	0.2461E-10	-10.609	
130.0	513.0	10.3509	10.5388	11.1233	7.3868	26.29	17.22	0.8289E-11	-11.082	
140.0	632.3	9.9860	10.3109	10.7925	7.2962	25.76	21.74	0.3943E-11	-11.404	
150.0	722.4	9.6972	10.1376	10.5324	7.2314	25.26	25.41	0.2214E-11	-11.655	
160.0	790.4	9.4519	9.9954	10.3128	7.1814	24.77	28.43	0.1369E-11	-11.864	
170.0	841.8	9.2339	9.8728	10.1186	7.14C6	24.29	30.97	0.9006E-12	-12.045	
180.0	880.5	9.0342	9.7631	9.9414	7.1059	23.81	33.15	0.6179E-12	-12.209	
190.0	909.8	8.8473	9.6626	9.7759	7.0755	23.34	35.05	0.4372E-12	-12.359	
200.0	931.9	8.6693	9.5684	9.6188	7.0481	22.87	36.75	0.3166E-12	-12.499	
210.0	948.6	8.4981	9.4789	9.4679	7.0228	22.41	38.30	0.2334E-12	-12.632	
220.0	961.2	8.3318	9.3929	9.3216	6.9992	21.95	39.74	0.1747E-12	-12.758	
230.0	970.7	8.1692	9.3095	9.1788	6.9767	21.50	41.19	0.1323E-12	-12.878	
240.0	977.9	8.0096	9.2281	9.0386	6.9552	21.06	42.39	0.1012E-12	-12.995	
250.0	983.3	7.8522	9.1482	8.9036	6.9343	20.64	43.63	0.7820E-13	-13.107	
260.0	987.4	7.6967	9.0695	8.7642	6.9139	20.24	44.82	0.6090E-13	-13.215	
270.0	990.5	7.5426	8.9918	8.6291	6.8940	19.85	45.98	0.4777E-13	-13.321	
280.0	992.8	7.3897	8.9148	8.4951	6.8744	19.48	47.10	0.3773E-13	-13.423	
290.0	994.6	7.2378	8.8385	8.3620	6.8550	19.13	48.19	0.2999E-13	-13.523	
300.0	995.9	7.0868	8.7627	8.2298	6.8358	18.80	49.24	0.2397E-13	-13.620	
320.0	997.7	6.7871	8.6124	7.9672	6.7979	18.21	51.25	0.1556E-13	-13.808	
340.0	998.7	6.4898	8.4636	7.7070	6.7605	17.69	53.13	0.1030E-13	-13.987	
360.0	999.2	6.1947	8.3159	7.4486	6.7235	17.23	54.88	0.6924E-14	-14.160	
380.0	999.6	5.9017	8.1693	7.1920	6.6867	16.83	56.54	0.4722E-14	-14.326	
400.0	999.8	5.6105	8.0237	6.9371	6.6502	16.47	58.13	0.3259E-14	-14.487	
420.0	999.9	5.3211	7.8790	6.6837	6.6140	16.14	59.70	0.2273E-14	-14.643	
440.0	999.9	5.0334	7.7351	6.4318	6.5780	15.81	61.30	0.1600E-14	-14.796	
460.0	1000.0	4.7474	7.5921	6.1815	6.5422	15.48	62.99	0.1135E-14	-14.945	
480.0	1000.0	4.4632	7.4500	5.9326	6.5066	15.13	64.83	0.8115E-15	-15.091	
500.0	1000.0	4.1806	7.3087	5.6852	6.4713	14.300	64.75	0.5838E-15	-15.234	
520.0	1000.0	3.8996	7.1682	5.4392	6.4361	14.212	14.33	69.25	0.4227E-15	-15.374
540.0	1000.0	3.6203	7.0285	5.1947	6.4012	14.0124	13.86	72.01	0.3080E-15	-15.511
560.0	1000.0	3.3426	6.8897	4.9516	6.3664	14.036	13.34	75.26	0.2258E-15	-15.646
580.0	1000.0	3.0665	6.7516	4.7099	6.3319	14.3949	12.76	79.12	0.1667E-15	-15.778
600.0	1000.0	2.7920	6.6144	4.4695	6.2975	14.3863	12.13	83.70	0.1240E-15	-15.907
620.0	1000.0	2.5190	6.4779	4.2306	6.2634	14.3777	11.46	89.10	0.9288E-16	-16.032
640.0	1000.0	2.2476	6.3422	3.9930	6.2294	14.3691	10.76	95.44	0.7020E-16	-16.154
660.0	1000.0	1.9778	6.2073	3.7568	6.1957	14.3606	10.05	102.79	0.5356E-16	-16.271
680.0	1000.0	1.7095	6.0732	3.5219	6.1621	14.3522	9.34	111.20	0.4129E-16	-16.384
700.0	1000.0	1.4427	5.9398	3.2883	6.1287	14.3438	8.66	120.67	0.3219E-16	-16.492
750.0	1000.0	0.7824	5.6096	2.7102	6.0461	14.3230	7.14	148.41	0.1826E-16	-16.738
800.0	1000.0	0.1312	5.2840	2.1401	5.9646	14.3025	5.99	179.47	0.1128E-16	-16.948
850.0	1000.0	-0.5109	4.9629	1.5780	5.8843	14.2822	5.20	209.75	0.7566E-17	-17.121
900.0	1000.0	-1.1442	4.6463	1.0236	5.8050	14.2623	4.68	235.88	0.5451E-17	-17.264
950.0	1000.0	-1.7688	4.3340	0.4768	5.7265	14.2426	4.36	256.64	0.4147E-17	-17.382
1000.0	1000.0	-2.3849	4.0260	-0.0626	5.6498	14.2232	4.17	272.51	0.3278E-17	-17.484

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued

EXOSPHERIC TEMPERATURE = 950 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALF HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8828	11.6221	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	502.7	10.3557	10.5456	11.1285	7.3917		26.29	16.88	0.8392E-11	-11.076
140.0	613.7	9.9878	10.3193	10.7957	7.3028		25.74	21.12	0.3976E-11	-11.401
150.0	697.2	9.6938	10.1436	10.5314	7.2386		25.22	24.56	0.2213E-11	-11.655
160.0	759.9	9.4422	9.6991	10.3065	7.1886		24.71	27.41	0.1354E-11	-11.868
170.0	807.1	9.2175	9.8737	10.1065	7.1476		24.20	29.81	0.8808E-12	-12.055
180.0	842.6	9.0108	9.7610	9.9232	7.1125		23.70	31.87	0.5975E-12	-12.224
190.0	869.2	8.8166	9.6571	9.7515	7.0915		23.20	33.69	0.4180E-12	-12.379
200.0	889.3	8.6312	9.5595	9.5880	7.0534		22.71	35.33	0.2993E-12	-12.524
210.0	904.4	8.4525	9.4665	9.4326	7.0274		22.22	36.83	0.2183E-12	-12.661
220.0	915.7	8.2786	9.3768	9.2777	7.0030		21.74	38.23	0.1616E-12	-12.792
230.0	924.2	8.1384	9.2897	9.1292	6.9797		21.27	39.55	0.1211E-12	-12.917
240.0	930.6	7.9410	9.2045	8.9813	6.9572		20.82	40.82	0.9180E-13	-13.037
250.0	935.4	7.7759	9.1209	8.8365	6.9355		20.38	42.03	0.7024E-13	-13.153
260.0	939.0	7.6126	9.0384	8.6933	6.9142		19.97	43.20	0.5420E-13	-13.266
270.0	941.8	7.4507	8.9568	8.5514	6.8933		19.57	44.33	0.4216E-13	-13.375
280.0	943.8	7.2900	8.8760	8.4106	6.8728		19.20	45.43	0.3302E-13	-13.481
290.0	945.3	7.1304	8.7958	8.2707	6.8524		18.85	46.49	0.2604E-13	-13.584
300.0	946.5	6.9716	8.7161	8.1316	6.8323		18.52	47.51	0.2066E-13	-13.685
320.0	948.0	6.6563	8.5581	7.8555	6.7925		17.93	49.44	0.1322E-13	-13.879
340.0	948.9	6.3435	9.4015	7.5816	6.7532		17.43	51.24	0.8627E-14	-14.064
360.0	949.4	6.0330	8.2462	7.3098	6.7142		16.98	52.91	0.5724E-14	-14.242
380.0	949.6	5.7245	8.0919	7.0397	6.6756		16.59	54.50	0.3852E-14	-14.414
400.0	949.8	5.4180	7.9386	6.7714	6.6372		16.23	56.05	0.2624E-14	-14.581
420.0	949.9	5.1134	7.7863	6.5047	6.5990		15.89	57.61	0.1806E-14	-14.743
440.0	949.9	4.8106	7.6348	6.2396	6.5611		15.54	59.25	0.1254E-14	-14.992
460.0	950.0	4.5096	7.4843	5.9761	6.5235		15.18	61.03	0.8783E-15	-15.056
480.0	950.0	4.2104	7.3347	5.7141	6.4860		14.78	63.04	0.6195E-15	-15.208
500.0	950.0	3.9129	7.1860	5.4537	6.4488	4.5753	14.34	65.36	0.4401E-15	-15.356
520.0	950.0	3.6172	7.0381	5.1947	6.4118	4.5660	13.84	68.10	0.3147E-15	-15.502
540.0	950.0	3.3231	6.8911	4.9373	6.3750	4.5568	13.28	71.37	0.2267E-15	-15.645
560.0	950.0	3.0308	6.7449	4.6814	6.3384	4.5475	12.67	75.29	0.1645E-15	-15.784
580.0	950.0	2.7402	6.5996	4.4270	6.3021	4.5384	11.99	79.99	0.1203E-15	-15.920
600.0	950.0	2.4512	6.4551	4.1740	6.2659	4.5293	11.27	85.60	0.8879E-16	-16.052
620.0	950.0	2.1639	6.3115	3.9225	6.2300	4.52C2	10.52	92.23	0.6617E-16	-16.179
640.0	950.0	1.8783	6.1687	3.6724	6.1942	4.5112	9.76	99.97	0.4985E-16	-16.302
660.0	950.0	1.5942	6.0266	3.4237	6.1587	4.5023	9.02	108.85	0.3801E-16	-16.420
680.0	950.0	1.3118	5.8854	3.1765	6.1234	4.4934	8.30	118.84	0.2936E-16	-16.532
700.0	950.0	1.0310	5.7450	2.93C6	6.0882	4.4845	7.64	129.85	0.2301E-16	-16.638
750.0	950.0	0.3358	5.3975	2.3221	6.0C12	4.4626	6.28	160.36	0.1336E-16	-16.874
800.0	950.0	-0.3496	5.0548	1.7220	5.9155	4.4410	5.33	191.52	0.8534E-17	-17.069
850.0	950.0	-1.0255	4.7168	1.1303	5.83C9	4.4198	4.73	219.01	0.5932E-17	-17.227
900.0	950.0	-1.6921	4.3835	0.5467	5.7475	4.3988	4.36	240.88	0.4401E-17	-17.356
950.0	950.0	-2.3495	4.0548	-0.0289	5.6652	4.3780	4.13	257.44	0.3417E-17	-17.466
1000.0	950.0	-2.9981	3.7305	-0.5967	5.5841	4.3576	3.99	270.05	0.2732E-17	-17.563

TABLE 1.--Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 900 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	491.6	10.3608	10.5530	11.1343	7.3972		26.28	16.51	0.8506E-11	-11.070
140.0	593.9	9.9895	10.3263	10.7990	7.3101		25.71	20.46	0.4010E-11	-11.397
150.0	670.6	9.6894	10.1499	10.5296	7.2464		25.17	23.67	0.2210E-11	-11.656
160.0	728.1	9.4306	10.0026	10.2986	7.1964		24.63	26.34	0.1336E-11	-11.874
170.0	771.2	9.1981	9.8739	10.0920	7.1549		24.10	28.60	0.8575E-12	-12.067
180.0	803.4	8.9833	9.7576	9.9017	7.1192		23.57	30.56	0.5741E-12	-12.241
190.0	827.6	8.7807	9.6498	9.7228	7.0875		23.04	32.30	0.3964E-12	-12.402
200.0	845.8	8.5870	9.5483	9.5520	7.0586		22.52	33.88	0.2803E-12	-12.552
210.0	859.4	8.3997	9.4512	9.3871	7.0317		22.00	35.33	0.2019E-12	-12.695
220.0	869.5	8.2172	9.3574	9.2267	7.0064		21.50	36.70	0.1477E-12	-12.831
230.0	877.2	8.0384	9.2660	9.0697	6.9821		21.02	38.00	0.1095E-12	-12.961
240.0	882.9	7.8623	9.1766	8.9152	6.9587		20.55	39.24	0.8210E-13	-13.086
250.0	887.2	7.6885	9.0887	8.7628	6.9359		20.10	40.43	0.6217E-13	-13.206
260.0	890.4	7.5165	9.0019	8.6120	6.9136		19.67	41.57	0.4752E-13	-13.323
270.0	892.8	7.3459	8.9160	8.4625	6.8917		19.27	42.68	0.3662E-13	-13.436
280.0	894.6	7.1765	8.8308	8.3141	6.8701		18.90	43.75	0.2843E-13	-13.546
290.0	896.0	7.0082	8.7463	8.1666	6.8487		18.55	44.77	0.2223E-13	-13.653
300.0	897.0	6.8407	8.6624	8.0200	6.8275		18.23	45.75	0.1749E-13	-13.757
320.0	898.3	6.5080	8.4957	7.7286	6.7855		17.65	47.60	0.1102E-13	-13.958
340.0	899.0	6.1780	8.3305	7.4397	6.7441		17.16	49.31	0.7083E-14	-14.150
360.0	899.5	5.8503	8.1665	7.1527	6.7030		16.72	50.91	0.4631E-14	-14.334
380.0	899.7	5.5247	8.0037	6.8677	6.6622		16.33	52.45	0.3071E-14	-14.513
400.0	899.8	5.2012	7.8419	6.5845	6.6217		15.97	53.98	0.2061E-14	-14.686
420.0	899.9	4.8797	7.6811	6.3030	6.5814		15.61	55.57	0.1398E-14	-14.855
440.0	899.9	4.5601	7.5213	6.0232	6.5414		15.22	57.29	0.9566E-15	-15.019
460.0	900.0	4.2423	7.3625	5.7450	6.5017		14.81	59.25	0.6600E-15	-15.180
480.0	900.0	3.9265	7.2045	5.4685	6.4621		14.34	61.54	0.4589E-15	-15.338
500.0	900.0	3.6125	7.0475	5.1936	6.4228	4.7344	13.81	64.26	0.3216E-15	-15.493
520.0	900.0	3.3003	6.8914	4.9203	6.3838	4.7246	13.22	67.56	0.2271E-15	-15.644
540.0	900.0	2.9900	6.7363	4.6486	6.3449	4.7148	12.55	71.57	0.1617E-15	-15.791
560.0	900.0	2.6814	6.5820	4.3785	6.3063	4.7051	11.82	76.44	0.1161E-15	-15.935
580.0	900.0	2.3746	6.4286	4.1099	6.2680	4.6954	11.04	82.32	0.8429E-16	-16.074
600.0	900.0	2.0696	6.2761	3.8428	6.2298	4.6858	10.23	89.32	0.6186E-16	-16.209
620.0	900.0	1.7664	6.1245	3.5773	6.1918	4.6762	9.42	97.53	0.4599E-16	-16.337
640.0	900.0	1.4648	5.9737	3.3134	6.1541	4.6667	8.64	106.98	0.3466E-16	-16.460
660.0	900.0	1.1650	5.8238	3.0509	6.1166	4.6573	7.91	117.60	0.2653E-16	-16.576
680.0	900.0	0.8669	5.6747	2.7899	6.0793	4.6479	7.24	129.21	0.2064E-16	-16.685
700.0	900.0	0.5705	5.5265	2.5304	6.0422	4.6386	6.64	141.57	0.1634E-16	-16.787
750.0	900.0	-0.1633	5.1596	1.8880	5.9504	4.6154	5.50	173.45	0.9840E-17	-17.007
800.0	900.0	-0.8868	4.7979	1.2546	5.8559	4.5926	4.77	202.59	0.6549E-17	-17.184
850.0	900.0	-1.6002	4.4412	0.6300	5.7706	4.5702	4.34	225.97	0.4716E-17	-17.326
900.0	900.0	-2.3039	4.0893	0.0140	5.6826	4.5480	4.08	243.58	0.3586E-17	-17.445
950.0	900.0	-2.9979	3.7423	-0.5936	5.5957	4.5261	3.92	256.88	0.2824E-17	-17.549
1000.0	900.0	-3.6824	3.4001	-1.1929	5.5101	4.5046	3.82	267.49	0.2272E-17	-17.644

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 850 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.3751	10.9808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	479.7	10.3664	10.5611	11.1405	7.4031		26.27	16.12	0.8630E-11	-11.064
140.0	573.0	9.9911	10.3349	10.8023	7.3180		25.68	19.76	0.4046E-11	-11.393
150.0	642.8	9.6839	10.1563	10.5271	7.2548		25.11	22.74	0.2203E-11	-11.657
160.0	695.0	9.4168	10.0058	10.2891	7.2046		24.55	25.23	0.1313E-11	-11.882
170.0	734.1	9.1754	9.8732	10.0747	7.1627		23.98	27.36	0.8305E-12	-12.081
180.0	763.3	8.9512	9.7527	9.8764	7.1262		23.42	29.22	0.5478E-12	-12.261
190.0	785.2	8.7392	9.6405	9.6892	7.0936		22.86	30.89	0.3727E-12	-12.429
200.0	801.5	8.5358	9.5343	9.5101	7.0638		22.31	32.41	0.2598E-12	-12.585
210.0	813.7	8.3388	9.4326	9.3368	7.0359		21.77	33.83	0.1846E-12	-12.734
220.0	822.9	8.1466	9.3340	9.1679	7.0094		21.24	35.16	0.1333E-12	-12.875
230.0	829.7	7.9580	9.2379	9.0023	6.9840		20.73	36.43	0.9760E-13	-13.011
240.0	834.8	7.7722	9.1437	8.8393	6.9595		20.25	37.65	0.7232E-13	-13.141
250.0	838.6	7.5886	9.0509	8.6783	6.9355		19.79	38.81	0.5416E-13	-13.266
260.0	841.5	7.4067	8.9592	8.5190	6.9120		19.36	39.94	0.4096E-13	-13.388
270.0	843.6	7.2264	8.8685	8.3609	6.8889		18.95	41.01	0.3125E-13	-13.505
280.0	845.2	7.0472	8.7785	8.2040	6.8661		18.58	42.04	0.2403E-13	-13.619
290.0	846.4	6.8691	8.6891	8.0479	6.8435		18.24	43.03	0.1862E-13	-13.730
300.0	847.3	6.6918	8.6003	7.8927	6.8211		17.92	43.97	0.1452E-13	-13.838
320.0	848.5	6.3398	8.4239	7.5844	6.7767		17.36	45.73	0.8994E-14	-14.046
340.0	849.2	5.9904	8.2491	7.2785	6.7329		16.87	47.35	0.5686E-14	-14.245
360.0	849.5	5.6435	8.0755	6.9748	6.6894		16.45	48.88	0.3656E-14	-14.437
380.0	849.7	5.2988	7.9031	6.6730	6.6462		16.06	50.39	0.2385E-14	-14.623
400.0	849.9	4.9563	7.7319	6.3731	6.6033		15.67	51.93	0.1574E-14	-14.803
420.0	849.9	4.6158	7.5616	6.0751	6.5607		15.27	53.61	0.1050E-14	-14.979
440.0	850.0	4.2774	7.3924	5.7788	6.5183		14.84	55.52	0.7068E-15	-15.151
460.0	850.0	3.9410	7.2242	5.4843	6.4762		14.34	57.78	0.4799E-15	-15.319
480.0	850.0	3.6066	7.0570	5.1915	6.4344		13.78	60.51	0.3286E-15	-15.483
500.0	850.0	3.2741	6.8907	4.9004	6.3928	4.9091	13.13	63.86	0.2269E-15	-15.644
520.0	850.0	2.9436	6.7255	4.6111	6.3514	4.8987	12.40	67.99	0.1582E-15	-15.801
540.0	850.0	2.6150	6.5612	4.3234	6.3103	4.8884	11.61	73.09	0.1114E-15	-15.953
560.0	850.0	2.2883	6.3978	4.0373	6.2654	4.8781	10.76	79.32	0.7940E-16	-16.100
580.0	850.0	1.9634	6.2354	3.7530	6.2288	4.8679	9.89	86.80	0.5733E-16	-16.242
600.0	850.0	1.6405	6.0739	3.4702	6.1884	4.8577	9.03	95.63	0.4201E-16	-16.377
620.0	850.0	1.3194	5.9134	3.1891	6.1482	4.8476	8.21	105.80	0.3130E-16	-16.504
640.0	850.0	1.0001	5.7537	2.9096	6.1083	4.8375	7.45	117.18	0.2375E-16	-16.624
660.0	850.0	0.6826	5.5950	2.6317	6.0685	4.8275	6.78	129.52	0.1837E-16	-16.736
680.0	850.0	0.3670	5.4372	2.3553	6.0290	4.8176	6.20	142.47	0.1450E-16	-16.839
700.0	850.0	0.0531	5.2803	2.0806	5.9898	4.8077	5.71	155.62	0.1167E-16	-16.933
750.0	850.0	-0.7238	4.8918	1.4004	5.8926	4.7832	4.82	186.73	0.7364E-17	-17.133
800.0	850.0	-1.4898	4.5088	1.7297	5.7967	4.7591	4.30	212.21	0.5116E-17	-17.291
850.0	850.0	-2.2453	4.1311	0.0684	5.7022	4.7353	4.00	231.40	0.3799E-17	-17.420
900.0	850.0	-2.9903	3.7586	-0.5839	5.6690	4.7118	3.82	245.88	0.2940E-17	-17.532
950.0	850.0	-3.7251	3.3911	-1.2272	5.5170	4.6886	3.70	257.56	0.2333E-17	-17.632
1000.0	850.0	-4.4499	3.0287	-1.8617	5.4263	4.6658	3.60	267.89	0.1880E-17	-17.726

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 800 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(C2) /CM ³	LOG N(C) /CM ³	LOG N(N2) /CM ³	LOG N(He) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	467.4	10.3723	10.5697	11.1471	7.4095		26.26	15.71	0.8765E-11	-11.057
140.0	551.3	9.9925	10.3439	10.8056	7.3264		25.65	19.93	0.4082E-11	-11.389
150.0	614.1	9.6772	10.1629	10.5237	7.2638		25.05	21.79	0.2193E-11	-11.659
160.0	661.1	9.4006	10.0086	10.2775	7.2124		24.45	24.39	0.1286E-11	-11.891
170.0	696.1	9.1488	9.8715	10.0544	7.1708		23.85	26.39	0.7997E-12	-12.097
180.0	722.4	8.9141	9.7460	9.8468	7.1334		23.25	27.85	0.5186E-12	-12.285
190.0	742.0	8.6911	9.6288	9.6502	7.0598		22.65	29.45	0.3471E-12	-12.460
200.0	756.6	8.4768	9.5174	9.4615	7.0688		22.07	30.93	0.2381E-12	-12.623
210.0	767.6	8.2688	9.4102	9.2786	7.0396		21.50	32.31	0.1666E-12	-12.778
220.0	775.8	8.0655	9.3063	9.1001	7.0119		20.94	33.61	0.1186E-12	-12.926
230.0	781.9	7.8658	9.2047	8.9248	6.9853		20.42	34.86	0.8565E-13	-13.067
240.0	786.5	7.6689	9.1050	8.7521	6.9594		19.92	36.05	0.6265E-13	-13.203
250.0	789.9	7.4742	9.0067	8.5814	6.9341		19.45	37.19	0.4636E-13	-13.334
260.0	792.4	7.2813	9.9095	8.4124	6.9092		19.02	38.28	0.3466E-13	-13.460
270.0	794.3	7.0898	8.8133	8.2446	6.8848		18.61	39.32	0.2616E-13	-13.582
280.0	795.8	6.8996	8.7178	8.0780	6.8666		18.24	40.31	0.1991E-13	-13.701
290.0	796.8	6.7195	8.6230	7.9124	6.8366		17.91	41.25	0.1527E-13	-13.816
300.0	797.6	6.5223	9.5286	7.7475	6.8129		17.60	42.14	0.1179E-13	-13.928
320.0	798.7	6.1483	8.3414	7.4201	6.7658		17.05	43.81	0.7168E-14	-14.145
340.0	799.3	5.7772	9.1556	7.0951	6.7192		16.58	45.35	0.4447E-14	-14.352
360.0	799.6	5.4086	7.9713	6.7724	6.6720		16.16	46.84	0.2807E-14	-14.552
380.0	799.8	5.0424	7.7881	6.4518	6.6271		15.75	48.36	0.1797E-14	-14.745
400.0	799.9	4.6785	7.6061	6.1332	6.5816		15.33	49.99	0.1164E-14	-14.934
420.0	799.9	4.3168	7.4253	5.8165	6.5363		14.86	51.86	0.7619E-15	-15.118
440.0	800.0	3.9572	7.2455	5.5017	6.4913		14.33	54.19	0.5036E-15	-15.298
460.0	800.0	3.5998	7.0668	5.1888	6.4466		13.72	56.85	0.3360E-15	-15.474
480.0	800.0	3.2445	6.9891	4.8778	6.4021		13.01	60.29	0.2264E-15	-15.645
500.0	800.0	2.8912	6.7125	4.5685	6.3579	5.1019	12.21	64.62	0.1542E-15	-15.812
520.0	800.0	2.5600	5.5369	4.2610	6.3140	5.0908	11.33	70.04	0.1062E-15	-15.974
540.0	800.0	2.1909	6.3623	3.9554	6.2703	5.0798	10.40	76.75	0.7420E-16	-16.130
560.0	800.0	1.8437	6.1887	3.6515	6.2268	5.0689	9.46	84.90	0.5264E-16	-16.279
580.0	800.0	1.4986	6.0162	3.3493	6.1837	5.0580	8.54	94.57	0.3802E-16	-16.420
600.0	800.0	1.1555	5.8446	3.0489	6.1407	5.0472	7.69	105.69	0.2801E-16	-16.553
620.0	800.0	0.8143	5.6740	2.7502	6.0980	5.0365	6.92	118.06	0.2108E-16	-16.676
640.0	800.0	0.4751	5.5044	2.4532	6.0556	5.0258	6.26	131.32	0.1623E-16	-16.790
660.0	800.0	0.1378	5.3357	2.1579	6.0134	5.0152	5.70	144.99	0.1279E-16	-16.893
680.0	800.0	-0.1976	5.1681	1.8643	5.9714	5.0046	5.24	158.59	0.1031E-16	-16.987
700.0	800.0	-0.5311	5.0013	1.5724	5.9297	4.9941	4.87	171.65	0.8486E-17	-17.071
750.0	800.0	-1.3565	4.5886	0.8497	5.8264	4.9681	4.24	200.08	0.5644E-17	-17.248
800.0	800.0	-2.1705	4.1816	0.1371	5.7246	4.9424	3.88	221.73	0.4076E-17	-17.390
850.0	800.0	-2.9731	3.7803	-0.5655	5.6242	4.9172	3.66	238.19	0.3096E-17	-17.509
900.0	800.0	-3.7647	3.3845	-1.2585	5.5251	4.8922	3.51	251.73	0.2422E-17	-17.616
950.0	800.0	-4.5454	2.9941	-1.9421	5.4274	4.8676	3.39	264.10	0.1928E-17	-17.715
1000.0	800.0	-5.3156	2.6091	-2.6163	5.3311	4.8434	3.29	276.40	0.1552E-17	-17.809

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 750 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM ³	LOG N(O) /CM ³	LOG N(N2) /CM ³	LOG N(HE) /CM ³	LOG N(H) /CM ³	MEAN MDL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	454.5	10.3785	10.5789	11.1540	7.4162		26.25	15.29	0.8909E-11	-11.050
140.0	529.0	9.9936	10.3535	10.8088	7.3355		25.61	18.29	0.4118E-11	-11.385
150.0	584.7	9.6692	10.1695	10.5194	7.2734		24.98	20.79	0.2179E-11	-11.662
160.0	626.3	9.3816	10.0108	10.2639	7.2226		24.34	22.93	0.1254E-11	-11.902
170.0	657.5	9.1182	9.8685	10.0306	7.1752		23.70	24.80	0.7653E-12	-12.116
180.0	680.9	8.8712	9.7375	9.8125	7.1408		23.06	26.47	0.4868E-12	-12.313
190.0	698.3	8.6359	9.6143	9.6051	7.1C59		22.42	28.00	0.3198E-12	-12.495
200.0	711.3	8.4090	9.4969	9.4055	7.0736		21.80	29.43	0.2154E-12	-12.667
210.0	721.0	8.1883	9.3836	9.2116	7.0420		21.20	30.78	0.1482E-12	-12.829
220.0	728.3	7.9724	9.2734	9.0220	7.0138		20.62	32.06	0.1038E-12	-12.984
230.0	733.8	7.7600	9.1656	8.9357	6.9857		20.07	33.28	0.7388E-13	-13.131
240.0	737.9	7.5505	9.0596	8.6519	6.9583		19.56	34.44	0.5329E-13	-13.273
250.0	740.9	7.3432	8.9551	8.4702	6.9314		19.09	35.55	0.3892E-13	-13.410
260.0	743.2	7.1377	8.8517	8.2901	6.9051		18.65	36.60	0.2874E-13	-13.542
270.0	744.9	6.9337	8.7492	8.1114	6.8750		18.26	37.60	0.2143E-13	-13.669
280.0	746.2	6.7309	8.6474	7.9338	6.8533		17.89	38.54	0.1612E-13	-13.793
290.0	747.2	6.5293	8.5463	7.7572	6.8278		17.56	39.43	0.1223E-13	-13.913
300.0	747.9	6.3286	8.4458	7.5815	6.8025		17.26	40.28	0.9345E-14	-14.029
320.0	748.8	5.9298	8.2461	7.2223	6.7523		16.73	41.85	0.5559E-14	-14.255
340.0	749.3	5.5340	8.0481	6.8857	6.7026		16.27	43.34	0.3377E-14	-14.471
360.0	749.6	5.1409	7.8514	6.5415	6.6534		15.83	44.83	0.2086E-14	-14.681
380.0	749.8	4.7503	7.6561	6.1996	6.6044		15.38	46.44	0.1307E-14	-14.884
400.0	749.9	4.3621	7.4620	5.8597	6.5558		14.88	48.28	0.8288E-15	-15.082
420.0	749.9	3.9763	7.2690	5.5219	6.5076		14.31	50.51	0.5313E-15	-15.275
440.0	750.0	3.5924	7.1773	5.1862	6.4596		13.63	53.32	0.3443E-15	-15.463
460.0	750.0	3.2115	6.9866	4.8524	6.4119		12.85	56.92	0.2255E-15	-15.647
480.0	750.0	2.8325	6.6971	4.5236	6.3644		11.95	61.55	0.1496E-15	-15.825
500.0	750.0	2.4557	6.5087	4.1907	6.3173	5.3155	10.97	67.47	0.1006E-15	-15.997
520.0	750.0	2.0911	6.3214	3.8628	6.27C4	5.3037	9.93	74.91	0.6876E-16	-16.163
540.0	750.0	1.7087	6.1352	3.5367	6.2238	5.2920	8.91	84.05	0.4789E-16	-16.320
560.0	750.0	1.3384	5.9501	3.2125	6.1775	5.2803	7.93	94.94	0.3408E-16	-16.467
580.0	750.0	0.9703	5.7660	2.8902	6.1314	5.2687	7.05	107.45	0.2484E-16	-16.605
600.0	750.0	0.6042	5.5830	2.5698	6.0856	5.2572	6.28	121.23	0.1859E-16	-16.731
620.0	750.0	0.2403	5.4010	2.2512	6.0401	5.2457	5.64	135.77	0.1428E-16	-16.845
640.0	750.0	-0.1215	5.2201	1.9344	5.9548	5.2343	5.12	150.46	0.1127E-16	-16.948
660.0	750.0	-0.4813	5.0402	1.6195	5.9498	5.2230	4.70	164.73	0.9118E-17	-17.040
680.0	750.0	-0.8390	4.8614	1.3063	5.9050	5.2117	4.37	178.14	0.7546E-17	-17.122
700.0	750.0	-1.1947	4.6835	0.9949	5.8605	5.2005	4.12	190.42	0.6370E-17	-17.196
750.0	750.0	-2.0752	4.2433	0.2240	5.75C4	5.1727	3.68	215.94	0.4456E-17	-17.351
800.0	750.0	-2.9434	3.8092	-0.5361	5.6417	5.1454	3.42	235.68	0.3319E-17	-17.479
850.0	750.0	-3.7996	3.3811	-1.2856	5.5346	5.1184	3.24	252.39	0.2560E-17	-17.592
900.0	750.0	-4.6439	2.9589	-2.0248	5.4250	5.0918	3.09	268.19	0.2016E-17	-17.696
950.0	750.0	-5.4767	2.5425	-2.7539	5.3248	5.0656	2.95	284.40	0.1608E-17	-17.794
1000.0	750.0	-6.2982	2.1318	-3.4731	5.2220	5.0397	2.82	301.77	0.1295E-17	-17.888

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 700 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(CO) /CM ³	LOG N(O) /CM ³	LOG N(N ₂) /CM ³	LOG N(HE) /CM ³	LOG N(H) /CM ³	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM ³	LOG DEN GM/CM ³
120.0	355.0	10.8751	10.8808	11.621	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	441.4	10.3850	10.5885	11.1612	7.4233		26.24	14.85	0.9062E-11	-11.043
140.0	506.2	9.9944	10.3634	10.8119	7.345C		25.58	17.53	0.4154E-11	-11.382
150.0	554.8	9.6597	10.1762	10.5139	7.2835		24.90	19.79	0.2160E-11	-11.666
160.0	591.2	9.3598	10.0124	10.2479	7.2323		24.22	21.75	0.1218E-11	-11.914
170.0	618.4	9.0829	9.8642	10.0031	7.1879		23.53	23.49	0.7272E-12	-12.138
180.0	638.9	8.8220	9.7267	9.7729	7.1483		22.84	25.07	0.4527E-12	-12.344
190.0	654.2	8.5725	9.5968	9.5532	7.1120		22.16	26.55	0.2912E-12	-12.536
200.0	665.7	8.3312	9.4724	9.3410	7.0781		21.50	27.93	0.1923E-12	-12.716
210.0	674.3	8.0961	9.3520	9.1344	7.0459		20.86	29.24	0.1298E-12	-12.887
220.0	680.7	7.8656	9.2347	8.9322	7.0150		20.26	30.49	0.8936E-13	-13.049
230.0	685.5	7.6387	9.1197	8.7332	6.9851		19.70	31.68	0.6254E-13	-13.204
240.0	689.2	7.4147	9.0066	8.5367	6.9559		19.18	32.81	0.4442E-13	-13.352
250.0	691.9	7.1929	8.8948	8.3424	6.9273		18.70	33.89	0.3197E-13	-13.495
260.0	693.9	6.9730	8.7842	8.1497	6.8992		18.27	34.89	0.2328E-13	-13.633
270.0	695.4	6.7546	8.6746	7.9584	6.8714		17.88	35.83	0.1714E-13	-13.766
280.0	696.6	6.5375	9.5657	7.7682	6.8439		17.53	36.73	0.1273E-13	-13.895
290.0	697.4	6.3216	8.4574	7.5791	6.8166		17.21	37.57	0.9537E-14	-14.021
300.0	698.1	6.1066	8.3498	7.3909	6.7855		16.92	38.37	0.7198E-14	-14.143
320.0	698.9	5.6794	8.1359	7.0168	6.7358		16.39	39.88	0.4178E-14	-14.379
340.0	699.4	5.2554	7.9237	6.6455	6.6826		15.91	41.37	0.2477E-14	-14.606
360.0	699.7	4.8342	7.7131	6.2768	6.6258		15.42	42.96	0.1493E-14	-14.826
380.0	699.8	4.4157	7.5038	5.9104	6.5774		14.88	44.80	0.9125E-15	-15.040
400.0	699.9	3.9998	7.2958	5.5463	6.5253		14.24	47.08	0.5648E-15	-15.248
420.0	699.9	3.5864	7.0891	5.1844	6.4736		13.48	50.03	0.3539E-15	-15.451
440.0	700.0	3.1755	6.8836	4.8246	6.4222		12.58	53.92	0.2246E-15	-15.649
460.0	700.0	2.7670	6.6794	4.4670	6.3711		11.55	59.07	0.1446E-15	-15.840
480.0	700.0	2.3610	6.4763	4.1115	6.3203		10.43	65.81	0.9468E-16	-16.024
500.0	700.0	1.9572	6.2745	3.7591	6.2697	5.5534	9.27	74.46	0.6322E-16	-16.199
520.0	700.0	1.5559	6.0738	3.4067	6.2195	5.5407	8.15	85.21	0.4321E-16	-16.364
540.0	700.0	1.1569	5.8743	3.0573	6.1696	5.5282	7.12	98.09	0.3033E-16	-16.518
560.0	700.0	0.7601	5.6759	2.7100	6.1200	5.5157	6.23	112.81	0.2193E-16	-16.659
580.0	700.0	0.3657	5.4787	2.3647	6.0706	5.5032	5.49	128.81	0.1636E-16	-16.786
600.0	700.0	-0.0265	5.2826	2.0214	6.0215	5.4909	4.89	145.38	0.1260E-16	-16.900
620.0	700.0	-0.4164	5.0877	1.6800	5.9728	5.4786	4.42	161.73	0.1000E-16	-17.000
640.0	700.0	-0.8041	4.8938	1.3406	5.9242	5.4664	4.06	177.26	0.8155E-17	-17.089
660.0	700.0	-1.1895	4.7011	1.0031	5.8760	5.4542	3.77	191.60	0.6808E-17	-17.167
680.0	700.0	-1.5728	4.5094	0.6676	5.8281	5.4422	3.55	204.60	0.5797E-17	-17.237
700.0	700.0	-1.9539	4.3189	0.3339	5.7804	5.4302	3.38	216.34	0.5014E-17	-17.300
750.0	700.0	-2.8973	3.9472	-0.4920	5.6623	5.4004	3.07	241.44	0.3663E-17	-17.436
800.0	700.0	-3.8275	3.3821	-1.3063	5.5459	5.3711	2.86	263.26	0.2794E-17	-17.554
850.0	700.0	-4.7448	2.9234	-2.1094	5.4312	5.3422	2.68	284.45	0.2184E-17	-17.661
900.0	700.0	-5.5495	2.4711	-2.9014	5.3180	5.3137	2.52	306.55	0.1735E-17	-17.761
950.0	700.0	-6.5418	2.0250	-3.6826	5.2063	5.2856	2.37	330.33	0.1395E-17	-17.855
1000.0	700.0	-7.4219	1.5849	-4.4531	5.0962	5.2579	2.23	356.12	0.1134E-17	-17.945

TABLE 1.—Detailed atmospheric data as a function of height and exospheric temperature—Continued
EXOSPHERIC TEMPERATURE = 650 DEGREES

HEIGHT KM	TEMP DEG K	LOG N(O2) /CM3	LOG N(O) /CM3	LOG N(N2) /CM3	LOG N(HE) /CM3	LOG N(H) /CM3	MEAN MOL WT	SCALE HT KM	DENSITY GM/CM3	LOG DEN GM/CM3
120.0	355.0	10.8751	10.8808	11.6021	7.5315		26.90	11.62	0.2461E-10	-10.609
130.0	428.2	10.3916	10.5984	11.1687	7.4307		26.23	14.42	0.9222E-11	-11.035
140.0	483.3	9.9948	10.3737	10.8147	7.3550		25.53	16.76	0.4189E-11	-11.378
150.0	524.7	9.6486	10.1828	10.5072	7.2941		24.82	18.78	0.2137E-11	-11.670
160.0	555.8	9.3348	10.0133	10.2293	7.2424		24.08	20.56	0.1178E-11	-11.929
170.0	579.2	9.0426	9.8583	9.9714	7.1970		23.34	22.18	0.6859E-12	-12.164
180.0	596.7	8.7658	9.7134	9.7273	7.1559		22.60	23.67	0.4167E-12	-12.380
190.0	610.0	8.4998	9.5757	9.4933	7.1180		21.87	25.08	0.2617E-12	-12.582
200.0	619.9	8.2420	9.4432	9.2667	7.0822		21.16	26.42	0.1690E-12	-12.772
210.0	627.4	7.9902	9.3147	9.0456	7.0481		20.49	27.70	0.1118E-12	-12.952
220.0	633.0	7.7430	9.1892	8.8287	7.0153		19.87	28.91	0.7543E-13	-13.122
230.0	637.2	7.4994	9.0659	8.6151	6.9834		19.29	30.07	0.5184E-13	-13.285
240.0	640.4	7.2586	8.9445	8.4040	6.9522		18.77	31.16	0.3620E-13	-13.441
250.0	642.8	7.0201	8.8244	8.1951	6.9215		18.29	32.19	0.2563E-13	-13.591
260.0	644.6	6.7835	8.7055	7.9878	6.8913		17.87	33.14	0.1838E-13	-13.736
270.0	645.9	6.5485	8.5876	7.7819	6.8615		17.49	34.04	0.1333E-13	-13.875
280.0	646.9	6.3149	8.4704	7.5773	6.8319		17.14	34.88	0.9761E-14	-14.011
290.0	647.7	6.0824	8.3539	7.3737	6.8026		16.83	35.68	0.7209E-14	-14.142
300.0	648.3	5.8510	8.2380	7.1711	6.7734		16.54	36.45	0.5364E-14	-14.271
320.0	649.0	5.3910	8.0078	6.7683	6.7156		15.99	37.97	0.3026E-14	-14.519
340.0	649.4	4.9344	7.7793	6.3685	6.6564		15.44	39.58	0.1743E-14	-14.759
360.0	649.7	4.4808	7.5524	5.9714	6.6015		14.83	41.47	0.1021E-14	-14.991
380.0	649.8	4.0301	7.3271	5.5768	6.5451		14.10	43.90	0.6069E-15	-15.217
400.0	649.9	3.5823	7.1031	5.1847	6.4890		13.20	47.15	0.3660E-15	-15.437
420.0	649.9	3.1371	6.8805	4.7950	6.4323		12.13	51.62	0.2240E-15	-15.650
440.0	650.0	2.6946	6.6592	4.4076	6.3779		10.91	57.75	0.1395E-15	-15.855
460.0	650.0	2.2547	6.4393	4.0224	6.3229		9.60	66.04	0.8870E-16	-16.052
480.0	650.0	1.8173	6.2206	3.6396	6.2682		8.29	76.92	0.5782E-16	-16.238
500.0	650.0	1.3826	6.0032	3.2589	6.2138	5.8199	7.07	90.63	0.3883E-16	-16.411
520.0	650.0	0.9503	5.7871	2.8805	6.1597	5.8063	6.02	107.07	0.2698E-16	-16.569
540.0	650.0	0.5206	5.5722	2.5043	6.1C59	5.7927	5.16	125.67	0.1946E-16	-16.711
560.0	650.0	0.0934	5.3586	2.1303	6.0525	5.7793	4.48	145.50	0.1458E-16	-16.836
580.0	650.0	-0.3314	5.1462	1.7584	5.9993	5.7659	3.97	165.49	0.1134E-16	-16.946
600.0	650.0	-0.7537	4.9351	1.3887	5.9465	5.7526	3.57	184.70	0.9113E-17	-17.040
620.0	650.0	-1.1736	4.7251	1.0211	5.8939	5.7394	3.28	202.56	0.7537E-17	-17.123
640.0	650.0	-1.5911	4.5164	0.6556	5.8417	5.7262	3.05	218.85	0.6381E-17	-17.195
660.0	650.0	-2.0063	4.3088	0.2921	5.7897	5.7131	2.87	233.65	0.5502E-17	-17.259
680.0	650.0	-2.4190	4.1024	-0.0692	5.7381	5.7001	2.73	247.21	0.4813E-17	-17.318
700.0	650.0	-2.8295	3.8972	-0.4286	5.6867	5.6872	2.61	259.82	0.4256E-17	-17.371
750.0	650.0	-3.8454	3.3892	-1.3180	5.5596	5.6552	2.38	289.07	0.3233E-17	-17.490
800.0	650.0	-4.8472	2.8883	-2.1950	5.4343	5.6236	2.20	317.51	0.2531E-17	-17.597
850.0	650.0	-5.8351	2.3944	-3.0599	5.3107	5.5925	2.04	346.84	0.2021E-17	-17.694
900.0	650.0	-6.8093	1.9073	-3.9128	5.1888	5.5618	1.90	377.64	0.1639E-17	-17.785
950.0	650.0	-7.7702	1.4268	-4.7541	5.0686	5.5315	1.78	409.90	0.1348E-17	-17.870
1000.0	650.0	-8.7181	0.9529	-5.5839	4.9500	5.5017	1.67	443.29	0.1124E-17	-17.949

TABLE 2.—Densities as a function of height and exospheric temperature (decimal logarithms, g/cm³)

$\frac{Z}{T_e}$	2100	2050	2000	1950	1900	1850	1820	1750	1700	1650	1600	1550	1500	1450	1400
120	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609
130	-11.113	-11.112	-11.112	-11.112	-11.111	-11.111	-11.111	-11.111	-11.111	-11.111	-11.111	-11.110	-11.110	-11.108	-11.107
140	-11.438	-11.437	-11.436	-11.436	-11.435	-11.434	-11.434	-11.433	-11.433	-11.432	-11.431	-11.430	-11.429	-11.427	-11.426
150	-11.679	-11.678	-11.677	-11.676	-11.675	-11.675	-11.675	-11.675	-11.675	-11.675	-11.675	-11.674	-11.674	-11.665	-11.663
160	-11.871	-11.870	-11.870	-11.869	-11.868	-11.866	-11.866	-11.864	-11.864	-11.863	-11.863	-11.860	-11.859	-11.856	-11.855
170	-12.032	-12.031	-12.030	-12.030	-12.029	-12.028	-12.026	-12.026	-12.026	-12.022	-12.021	-12.020	-12.019	-12.018	-12.018
180	-12.171	-12.170	-12.170	-12.169	-12.168	-12.167	-12.166	-12.166	-12.166	-12.164	-12.164	-12.162	-12.161	-12.160	-12.161
190	-12.293	-12.293	-12.293	-12.292	-12.291	-12.291	-12.290	-12.289	-12.289	-12.288	-12.287	-12.286	-12.286	-12.285	-12.289
200	-12.404	-12.404	-12.404	-12.403	-12.403	-12.402	-12.402	-12.402	-12.402	-12.400	-12.400	-12.400	-12.401	-12.402	-12.404
210	-12.504	-12.505	-12.505	-12.505	-12.505	-12.505	-12.505	-12.504	-12.504	-12.504	-12.504	-12.505	-12.507	-12.512	-12.517
220	-12.597	-12.598	-12.598	-12.599	-12.599	-12.599	-12.599	-12.599	-12.599	-12.600	-12.600	-12.600	-12.600	-12.600	-12.620
230	-12.683	-12.685	-12.685	-12.686	-12.686	-12.686	-12.686	-12.686	-12.686	-12.693	-12.693	-12.693	-12.693	-12.693	-12.718
240	-12.764	-12.766	-12.766	-12.768	-12.768	-12.770	-12.772	-12.774	-12.775	-12.777	-12.780	-12.784	-12.788	-12.802	-12.811
250	-12.841	-12.843	-12.843	-12.845	-12.845	-12.850	-12.852	-12.854	-12.856	-12.856	-12.863	-12.868	-12.874	-12.881	-12.901
260	-12.913	-12.917	-12.917	-12.922	-12.922	-12.925	-12.925	-12.927	-12.930	-12.934	-12.938	-12.943	-12.948	-12.955	-12.975
270	-12.983	-12.983	-12.983	-12.990	-12.990	-12.997	-12.997	-13.000	-13.003	-13.006	-13.013	-13.026	-13.035	-13.057	-13.077
280	-13.049	-13.054	-13.054	-13.064	-13.064	-13.070	-13.070	-13.075	-13.080	-13.086	-13.093	-13.101	-13.111	-13.123	-13.153
290	-13.114	-13.119	-13.119	-13.123	-13.123	-13.128	-13.133	-13.138	-13.144	-13.150	-13.157	-13.165	-13.175	-13.196	-13.233
300	-13.175	-13.181	-13.181	-13.187	-13.187	-13.192	-13.198	-13.204	-13.210	-13.217	-13.226	-13.235	-13.246	-13.258	-13.310
310	-13.235	-13.242	-13.248	-13.254	-13.261	-13.268	-13.275	-13.283	-13.292	-13.294	-13.298	-13.315	-13.329	-13.345	-13.386
320	-13.293	-13.301	-13.308	-13.315	-13.320	-13.330	-13.338	-13.347	-13.357	-13.358	-13.369	-13.383	-13.398	-13.416	-13.460
330	-13.350	-13.358	-13.366	-13.373	-13.382	-13.390	-13.400	-13.410	-13.420	-13.421	-13.434	-13.449	-13.466	-13.485	-13.532
340	-13.405	-13.414	-13.414	-13.422	-13.431	-13.440	-13.449	-13.460	-13.471	-13.484	-13.514	-13.522	-13.553	-13.576	-13.603
350	-13.459	-13.468	-13.468	-13.477	-13.487	-13.507	-13.519	-13.531	-13.545	-13.560	-13.577	-13.597	-13.619	-13.644	-13.673
360	-13.511	-13.521	-13.531	-13.542	-13.553	-13.564	-13.576	-13.587	-13.590	-13.604	-13.621	-13.640	-13.663	-13.684	-13.741
370	-13.563	-13.573	-13.584	-13.596	-13.607	-13.620	-13.633	-13.647	-13.663	-13.681	-13.701	-13.723	-13.748	-13.808	-13.866
380	-13.613	-13.625	-13.636	-13.648	-13.661	-13.674	-13.684	-13.704	-13.721	-13.740	-13.761	-13.784	-13.811	-13.841	-13.874
390	-13.662	-13.675	-13.687	-13.703	-13.713	-13.728	-13.743	-13.759	-13.778	-13.798	-13.820	-13.849	-13.873	-13.904	-13.934
400	-13.711	-13.724	-13.737	-13.751	-13.765	-13.780	-13.796	-13.814	-13.833	-13.854	-13.878	-13.904	-13.933	-13.966	-14.003
410	-13.772	-13.786	-13.801	-13.816	-13.832	-13.849	-13.868	-13.888	-13.908	-13.921	-13.942	-13.963	-13.984	-13.993	-14.027
420	-13.805	-13.820	-13.835	-13.850	-13.866	-13.883	-13.901	-13.921	-13.942	-13.963	-13.986	-13.992	-14.022	-14.052	-14.083
430	-13.851	-13.867	-13.882	-13.898	-13.915	-13.933	-13.952	-13.973	-13.993	-14.014	-14.048	-14.073	-14.102	-14.133	-14.167
440	-13.897	-13.913	-13.929	-13.946	-13.964	-13.982	-14.002	-14.024	-14.046	-14.075	-14.099	-14.126	-14.156	-14.188	-14.224
450	-13.941	-13.958	-13.975	-13.993	-14.011	-14.031	-14.052	-14.075	-14.099	-14.126	-14.156	-14.188	-14.224	-14.263	-14.307
460	-13.985	-14.003	-14.021	-14.039	-14.059	-14.079	-14.101	-14.125	-14.150	-14.178	-14.209	-14.242	-14.279	-14.320	-14.365
470	-14.029	-14.047	-14.065	-14.085	-14.105	-14.126	-14.149	-14.174	-14.200	-14.229	-14.261	-14.296	-14.334	-14.376	-14.423
480	-14.072	-14.090	-14.110	-14.130	-14.151	-14.173	-14.197	-14.222	-14.250	-14.280	-14.313	-14.349	-14.388	-14.432	-14.487
490	-14.114	-14.133	-14.153	-14.174	-14.196	-14.219	-14.244	-14.270	-14.299	-14.320	-14.350	-14.384	-14.442	-14.487	-14.536
500	-14.156	-14.176	-14.197	-14.218	-14.241	-14.265	-14.290	-14.318	-14.347	-14.380	-14.415	-14.453	-14.495	-14.541	-14.592
510	-14.197	-14.218	-14.239	-14.261	-14.285	-14.310	-14.336	-14.365	-14.395	-14.428	-14.464	-14.504	-14.547	-14.595	-14.667
520	-14.237	-14.259	-14.281	-14.304	-14.329	-14.354	-14.382	-14.411	-14.442	-14.477	-14.514	-14.554	-14.599	-14.648	-14.701
530	-14.278	-14.300	-14.323	-14.347	-14.372	-14.398	-14.426	-14.457	-14.489	-14.524	-14.563	-14.604	-14.650	-14.700	-14.755
540	-14.317	-14.340	-14.364	-14.389	-14.414	-14.442	-14.471	-14.502	-14.535	-14.572	-14.611	-14.654	-14.701	-14.752	-14.808
550	-14.357	-14.380	-14.405	-14.430	-14.457	-14.485	-14.515	-14.551	-14.581	-14.618	-14.659	-14.581	-14.751	-14.803	-14.861

TABLE 2.—Densities as a function of height and exospheric temperature (decimal logarithms, g/cm³)—Continued

$\sqrt{\frac{T_e}{T_0}}$	2100	2050	2000	1950	1900	1850	1800	1750	1700	1650	1600	1550	1500	1450	1400
560	-14.396	-14.420	-14.445	-14.471	-14.498	-14.527	-14.550	-14.571	-14.591	-14.626	-14.665	-14.706	-14.751	-14.801	-14.854
570	-14.434	-14.459	-14.485	-14.511	-14.540	-14.569	-14.601	-14.635	-14.671	-14.711	-14.753	-14.799	-14.850	-14.905	-14.965
580	-14.472	-14.498	-14.524	-14.552	-14.581	-14.611	-14.644	-14.678	-14.716	-14.756	-14.800	-14.847	-14.889	-14.955	-15.016
590	-14.510	-14.536	-14.563	-14.591	-14.621	-14.652	-14.686	-14.721	-14.762	-14.801	-14.846	-14.884	-14.924	-15.004	-15.067
600	-14.547	-14.574	-14.602	-14.631	-14.661	-14.693	-14.728	-14.764	-14.803	-14.846	-14.881	-14.914	-14.954	-15.024	-15.118
610	-14.584	-14.612	-14.640	-14.667	-14.697	-14.734	-14.769	-14.806	-14.846	-14.890	-14.936	-14.987	-15.042	-15.102	-15.168
620	-14.621	-14.649	-14.678	-14.708	-14.736	-14.774	-14.810	-14.848	-14.889	-14.934	-14.981	-15.133	-15.189	-15.241	-15.311
630	-14.657	-14.686	-14.716	-14.747	-14.779	-14.814	-14.851	-14.890	-14.932	-14.977	-15.026	-15.079	-15.136	-15.199	-15.267
640	-14.693	-14.722	-14.753	-14.783	-14.818	-14.853	-14.893	-14.931	-14.974	-15.020	-15.074	-15.124	-15.183	-15.246	-15.316
650	-14.728	-14.759	-14.790	-14.822	-14.857	-14.893	-14.931	-14.972	-15.016	-15.063	-15.114	-15.169	-15.229	-15.294	-15.364
660	-14.764	-14.795	-14.826	-14.860	-14.895	-14.932	-14.967	-15.012	-15.057	-15.105	-15.157	-15.213	-15.274	-15.340	-15.412
670	-14.819	-14.837	-14.863	-14.897	-14.932	-14.970	-15.010	-15.053	-15.098	-15.147	-15.200	-15.258	-15.320	-15.387	-15.460
680	-14.834	-14.866	-14.899	-14.934	-14.970	-15.008	-15.049	-15.093	-15.139	-15.189	-15.243	-15.301	-15.365	-15.433	-15.508
690	-14.901	-14.935	-14.970	-15.007	-15.046	-15.088	-15.132	-15.180	-15.231	-15.286	-15.345	-15.409	-15.479	-15.555	-15.624
700	-14.932	-14.936	-14.973	-15.026	-15.044	-15.076	-15.126	-15.172	-15.220	-15.272	-15.328	-15.388	-15.454	-15.524	-15.601
710	-14.974	-14.995	-14.985	-14.967	-14.941	-14.917	-14.892	-14.867	-14.841	-14.806	-14.770	-14.737	-14.701	-14.668	-14.648
720	-14.972	-15.035	-15.040	-15.078	-15.117	-15.152	-15.203	-15.253	-15.300	-15.353	-15.411	-15.474	-15.541	-15.614	-15.693
730	-15.039	-15.039	-15.075	-15.113	-15.153	-15.196	-15.240	-15.288	-15.339	-15.394	-15.453	-15.516	-15.585	-15.659	-15.739
740	-15.037	-15.072	-15.127	-15.113	-15.148	-15.189	-15.232	-15.278	-15.326	-15.378	-15.434	-15.494	-15.558	-15.628	-15.703
750	-15.070	-15.106	-15.144	-15.183	-15.225	-15.269	-15.315	-15.364	-15.417	-15.474	-15.534	-15.600	-15.670	-15.746	-15.829
760	-15.103	-15.139	-15.178	-15.219	-15.260	-15.305	-15.352	-15.405	-15.456	-15.513	-15.575	-15.631	-15.698	-15.757	-15.848
770	-15.135	-15.173	-15.212	-15.253	-15.295	-15.341	-15.389	-15.440	-15.490	-15.552	-15.615	-15.678	-15.755	-15.833	-15.917
780	-15.167	-15.206	-15.245	-15.287	-15.330	-15.376	-15.425	-15.477	-15.532	-15.591	-15.655	-15.723	-15.796	-15.875	-15.961
790	-15.200	-15.238	-15.279	-15.321	-15.365	-15.412	-15.461	-15.514	-15.570	-15.630	-15.694	-15.763	-15.838	-15.918	-16.004
800	-15.231	-15.271	-15.312	-15.355	-15.400	-15.447	-15.497	-15.551	-15.607	-15.668	-15.734	-15.803	-15.879	-15.960	-16.046
810	-15.263	-15.303	-15.365	-15.388	-15.424	-15.482	-15.533	-15.587	-15.645	-15.706	-15.772	-15.843	-15.911	-15.979	-15.873
820	-15.295	-15.335	-15.377	-15.422	-15.468	-15.517	-15.571	-15.623	-15.682	-15.744	-15.811	-15.881	-15.950	-15.960	-16.042
830	-15.326	-15.367	-15.410	-15.455	-15.502	-15.551	-15.604	-15.659	-15.719	-15.782	-15.847	-15.922	-16.000	-16.083	-16.170
840	-15.357	-15.399	-15.442	-15.535	-15.588	-15.640	-15.692	-15.755	-15.819	-15.887	-15.951	-16.031	-16.109	-16.183	-16.213
850	-15.388	-15.430	-15.474	-15.520	-15.569	-15.620	-15.673	-15.731	-15.791	-15.856	-15.925	-15.991	-16.078	-16.163	-16.253
860	-15.419	-15.462	-15.506	-15.553	-15.602	-15.653	-15.708	-15.766	-15.827	-15.893	-15.963	-16.037	-16.117	-16.201	-16.293
870	-15.449	-15.493	-15.538	-15.585	-15.635	-15.687	-15.740	-15.801	-15.863	-15.929	-15.991	-16.070	-16.150	-16.241	-16.332
880	-15.480	-15.524	-15.563	-15.617	-15.668	-15.720	-15.776	-15.835	-15.898	-15.965	-16.036	-16.112	-16.190	-16.281	-16.376
890	-15.510	-15.554	-15.601	-15.649	-15.700	-15.754	-15.810	-15.870	-15.933	-16.003	-16.073	-16.149	-16.231	-16.317	-16.409
900	-15.540	-15.585	-15.632	-15.681	-15.732	-15.787	-15.844	-15.904	-15.968	-16.037	-16.109	-16.186	-16.268	-16.355	-16.446
910	-15.570	-15.615	-15.663	-15.712	-15.764	-15.819	-15.877	-15.938	-16.003	-16.072	-16.145	-16.222	-16.305	-16.392	-16.483
920	-15.599	-15.645	-15.693	-15.744	-15.796	-15.852	-15.910	-15.972	-16.037	-16.107	-16.180	-16.258	-16.341	-16.428	-16.502
930	-15.629	-15.675	-15.724	-15.775	-15.828	-15.884	-15.943	-16.005	-16.071	-16.141	-16.215	-16.294	-16.385	-16.464	-16.548
940	-15.658	-15.705	-15.754	-15.806	-15.860	-15.916	-15.976	-16.039	-16.105	-16.175	-16.250	-16.329	-16.412	-16.499	-16.591
950	-15.687	-15.735	-15.784	-15.836	-15.891	-15.948	-16.008	-16.071	-16.138	-16.209	-16.284	-16.363	-16.447	-16.534	-16.625
960	-15.716	-15.764	-15.814	-15.867	-15.922	-15.979	-16.030	-16.094	-16.151	-16.223	-16.305	-16.397	-16.481	-16.568	-16.659
970	-15.745	-15.793	-15.844	-15.897	-15.953	-16.011	-16.072	-16.136	-16.191	-16.256	-16.321	-16.401	-16.481	-16.568	-16.663
980	-15.773	-15.822	-15.874	-15.927	-15.983	-16.042	-16.104	-16.169	-16.237	-16.309	-16.385	-16.464	-16.544	-16.635	-16.725
990	-15.802	-15.851	-15.903	-15.957	-16.013	-16.073	-16.135	-16.200	-16.269	-16.341	-16.417	-16.497	-16.581	-16.671	-16.757
1000	-15.830	-15.880	-15.932	-15.987	-16.044	-16.103	-16.166	-16.231	-16.291	-16.373	-16.449	-16.529	-16.613	-16.699	-16.788

TABLE 2.—Densities as a function of height and exospheric temperature (decimal logarithms, g/cm³)—Continued

$\frac{2}{3} T_{\infty}$	1350	1300	1250	1200	1150	1100	1050	1000	950	900	850	800	750	700	650
120	-10.609	-10.639	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609	-10.609
130	-11.103	-11.103	-11.103	-11.098	-11.098	-11.098	-11.098	-11.098	-11.098	-11.098	-11.098	-11.098	-11.098	-11.098	-11.098
140	-11.424	-11.422	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419	-11.419
150	-11.662	-11.662	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659	-11.659
160	-11.855	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854	-11.854
170	-12.018	-12.019	-12.021	-12.021	-12.023	-12.023	-12.023	-12.023	-12.023	-12.023	-12.023	-12.023	-12.023	-12.023	-12.023
180	-12.162	-12.165	-12.168	-12.168	-12.170	-12.170	-12.170	-12.170	-12.170	-12.170	-12.170	-12.170	-12.170	-12.170	-12.170
190	-12.292	-12.296	-12.302	-12.302	-12.309	-12.309	-12.309	-12.309	-12.309	-12.309	-12.309	-12.309	-12.309	-12.309	-12.309
200	-12.412	-12.417	-12.425	-12.425	-12.435	-12.435	-12.447	-12.447	-12.447	-12.447	-12.447	-12.447	-12.447	-12.447	-12.447
210	-12.523	-12.531	-12.540	-12.540	-12.553	-12.553	-12.568	-12.568	-12.568	-12.568	-12.568	-12.568	-12.568	-12.568	-12.568
220	-12.623	-12.637	-12.650	-12.650	-12.664	-12.664	-12.682	-12.682	-12.682	-12.682	-12.682	-12.682	-12.682	-12.682	-12.682
230	-12.727	-12.739	-12.754	-12.754	-12.771	-12.771	-12.787	-12.787	-12.787	-12.787	-12.787	-12.787	-12.787	-12.787	-12.787
240	-12.823	-12.837	-12.854	-12.854	-12.874	-12.874	-12.897	-12.897	-12.897	-12.897	-12.897	-12.897	-12.897	-12.897	-12.897
250	-12.914	-12.931	-12.950	-12.950	-12.959	-12.959	-12.959	-12.959	-12.959	-12.959	-12.959	-12.959	-12.959	-12.959	-12.959
260	-13.003	-13.321	-13.043	-13.043	-13.068	-13.068	-13.098	-13.098	-13.098	-13.098	-13.098	-13.098	-13.098	-13.098	-13.098
270	-13.089	-13.110	-13.134	-13.134	-13.161	-13.161	-13.194	-13.194	-13.194	-13.194	-13.194	-13.194	-13.194	-13.194	-13.194
280	-13.173	-13.195	-13.221	-13.221	-13.252	-13.252	-13.287	-13.287	-13.287	-13.287	-13.287	-13.287	-13.287	-13.287	-13.287
290	-13.254	-13.279	-13.307	-13.307	-13.340	-13.340	-13.378	-13.378	-13.420	-13.420	-13.469	-13.469	-13.523	-13.523	-13.523
300	-13.333	-13.360	-13.391	-13.391	-13.426	-13.426	-13.466	-13.466	-13.512	-13.512	-13.563	-13.563	-13.622	-13.622	-13.622
310	-13.411	-13.447	-13.473	-13.473	-13.510	-13.510	-13.553	-13.553	-13.601	-13.601	-13.655	-13.655	-13.715	-13.715	-13.715
320	-13.487	-13.518	-13.553	-13.553	-13.592	-13.592	-13.637	-13.637	-13.688	-13.688	-13.744	-13.744	-13.808	-13.808	-13.808
330	-13.561	-13.594	-13.631	-13.631	-13.673	-13.673	-13.720	-13.720	-13.773	-13.773	-13.832	-13.832	-13.897	-13.897	-13.897
340	-13.634	-13.668	-13.708	-13.708	-13.752	-13.752	-13.801	-13.801	-13.856	-13.856	-13.918	-13.918	-13.971	-13.971	-13.971
350	-13.705	-13.742	-13.783	-13.783	-13.829	-13.829	-13.881	-13.881	-13.938	-13.938	-13.993	-13.993	-14.047	-14.047	-14.047
360	-13.775	-13.813	-13.856	-13.856	-13.905	-13.905	-13.958	-13.958	-14.019	-14.019	-14.085	-14.085	-14.160	-14.160	-14.160
370	-13.844	-13.884	-13.929	-13.929	-14.035	-14.035	-14.097	-14.097	-14.067	-14.067	-14.147	-14.147	-14.242	-14.242	-14.242
380	-13.911	-13.953	-14.000	-14.000	-14.052	-14.052	-14.110	-14.110	-14.175	-14.175	-14.226	-14.226	-14.326	-14.326	-14.326
390	-13.978	-14.021	-14.070	-14.070	-14.124	-14.124	-14.184	-14.184	-14.251	-14.251	-14.325	-14.325	-14.427	-14.427	-14.427
400	-14.043	-14.088	-14.139	-14.139	-14.195	-14.195	-14.257	-14.257	-14.326	-14.326	-14.402	-14.402	-14.487	-14.487	-14.487
450	-14.355	-14.439	-14.498	-14.498	-14.533	-14.533	-14.605	-14.605	-14.685	-14.685	-14.773	-14.773	-14.871	-14.871	-14.871
460	-14.415	-14.470	-14.531	-14.531	-14.598	-14.598	-14.672	-14.672	-14.728	-14.728	-14.794	-14.794	-14.863	-14.863	-14.863
470	-14.474	-14.531	-14.593	-14.593	-14.662	-14.662	-14.738	-14.738	-14.802	-14.802	-14.867	-14.867	-14.934	-14.934	-14.934
480	-14.533	-14.591	-14.655	-14.655	-14.726	-14.726	-14.793	-14.793	-14.859	-14.859	-15.024	-15.024	-15.193	-15.193	-15.193
490	-14.590	-14.650	-14.723	-14.723	-14.788	-14.788	-14.868	-14.868	-14.937	-14.937	-15.109	-15.109	-15.281	-15.281	-15.281
500	-14.647	-14.709	-14.776	-14.776	-14.853	-14.853	-14.932	-14.932	-15.023	-15.023	-15.234	-15.234	-15.493	-15.493	-15.493
510	-14.704	-14.767	-14.836	-14.836	-14.912	-14.912	-14.996	-14.996	-15.079	-15.079	-15.319	-15.319	-15.474	-15.474	-15.474
520	-14.760	-14.824	-14.893	-14.893	-14.959	-14.959	-15.059	-15.059	-15.155	-15.155	-15.430	-15.430	-15.569	-15.569	-15.569
530	-14.815	-14.881	-14.953	-14.953	-15.033	-15.033	-15.219	-15.219	-15.325	-15.325	-15.574	-15.574	-15.718	-15.718	-15.718
540	-14.870	-14.937	-15.011	-15.011	-15.093	-15.093	-15.281	-15.281	-15.391	-15.391	-15.645	-15.645	-15.953	-15.953	-15.953
550	-14.924	-14.993	-15.069	-15.069	-15.152	-15.152	-15.345	-15.345	-15.456	-15.456	-15.723	-15.723	-16.024	-16.024	-16.024

STATIC DIFFUSION MODELS OF THE UPPER ATMOSPHERE

TABLE 2.—Densities as a function of height and exospheric temperature (decimal logarithms, g/cm³)—Continued

$\frac{1}{2}T_e$	1350	1300	1250	1200	1150	1100	1050	1000	950	900	850	800	750	700	650
560	-14.978	-15.348	-15.126	-15.211	-15.305	-15.008	-15.521	-15.646	-15.784	-15.935	-16.100	-16.279	-16.467	-16.659	-16.836
570	-15.031	-15.103	-15.892	-15.269	-15.365	-15.470	-15.585	-15.712	-15.852	-16.005	-16.172	-16.350	-16.538	-16.724	-16.893
580	-15.084	-15.157	-15.238	-15.422	-15.537	-15.424	-15.649	-15.751	-15.920	-16.076	-16.242	-16.420	-16.505	-16.786	-16.946
590	-15.136	-15.211	-15.294	-15.384	-15.483	-15.592	-15.792	-15.712	-15.843	-15.986	-16.142	-16.310	-16.488	-16.669	-16.845
600	-15.188	-15.265	-15.349	-15.441	-15.542	-15.653	-15.774	-15.907	-16.052	-16.209	-16.377	-16.533	-16.700	-16.900	-17.040
610	-15.239	-15.318	-15.403	-15.497	-15.690	-15.712	-15.835	-15.970	-16.116	-16.274	-16.441	-16.616	-16.789	-16.951	-17.083
620	-15.290	-15.370	-15.457	-15.553	-15.657	-15.771	-15.896	-15.936	-16.032	-16.179	-16.337	-16.504	-16.676	-16.845	-17.000
630	-15.341	-15.422	-15.511	-15.608	-15.714	-15.830	-15.956	-16.055	-16.193	-16.241	-16.409	-16.565	-16.734	-16.898	-17.123
640	-15.391	-15.474	-15.564	-15.663	-15.770	-15.888	-16.005	-16.154	-16.302	-16.460	-16.624	-16.790	-16.947	-17.146	-17.160
650	-15.441	-15.525	-15.617	-15.717	-15.826	-15.945	-16.045	-16.214	-16.362	-16.519	-16.681	-16.843	-16.995	-17.129	-17.195
660	-15.491	-15.576	-15.669	-15.771	-15.881	-16.001	-16.131	-16.271	-16.420	-16.576	-16.736	-16.893	-17.040	-17.167	-17.259
670	-15.540	-15.627	-15.721	-15.824	-15.936	-16.057	-16.188	-16.328	-16.477	-16.632	-16.788	-16.941	-17.082	-17.203	-17.289
680	-15.588	-15.677	-15.772	-15.877	-15.990	-16.093	-16.116	-16.246	-16.384	-16.532	-16.685	-16.839	-16.987	-17.122	-17.237
690	-15.637	-15.726	-15.823	-15.929	-16.043	-16.166	-16.288	-16.439	-16.586	-16.737	-16.887	-17.037	-17.180	-17.269	-17.318
700	-15.685	-15.775	-15.874	-15.980	-16.095	-16.219	-16.352	-16.492	-16.638	-16.787	-16.933	-17.071	-17.196	-17.300	-17.371
710	-15.732	-15.824	-15.923	-16.031	-16.147	-16.272	-16.405	-16.544	-16.689	-16.834	-16.977	-17.110	-17.230	-17.329	-17.396
720	-15.779	-15.872	-15.973	-16.081	-16.198	-16.323	-16.456	-16.595	-16.738	-16.880	-17.019	-17.147	-17.262	-17.357	-17.421
730	-15.826	-15.920	-16.021	-16.131	-16.249	-16.374	-16.506	-16.644	-16.785	-16.924	-17.059	-17.183	-17.293	-17.385	-17.445
740	-15.872	-15.967	-16.077	-16.180	-16.298	-16.424	-16.556	-16.692	-16.830	-16.967	-17.097	-17.216	-17.323	-17.411	-17.468
750	-15.918	-16.014	-16.117	-16.228	-16.347	-16.472	-16.603	-16.738	-16.874	-17.007	-17.133	-17.248	-17.351	-17.436	-17.490
760	-15.963	-16.060	-16.164	-16.276	-16.394	-16.520	-16.650	-16.783	-16.916	-17.046	-17.167	-17.279	-17.378	-17.461	-17.512
770	-16.106	-16.211	-16.323	-16.441	-16.566	-16.695	-16.827	-16.957	-17.083	-17.200	-17.308	-17.405	-17.485	-17.534	-17.598
780	-16.052	-16.151	-16.256	-16.369	-16.487	-16.612	-16.739	-16.869	-16.996	-17.118	-17.232	-17.337	-17.430	-17.508	-17.576
790	-16.096	-16.195	-16.301	-16.414	-16.532	-16.742	-16.872	-16.999	-17.097	-17.212	-17.322	-17.426	-17.511	-17.576	-17.637
800	-16.140	-16.239	-16.346	-16.458	-16.576	-16.699	-16.824	-16.948	-17.069	-17.184	-17.291	-17.390	-17.479	-17.554	-17.597
810	-16.183	-16.283	-16.389	-16.502	-16.620	-16.741	-16.864	-16.985	-17.103	-17.225	-17.352	-17.471	-17.576	-17.617	-17.677
820	-16.225	-16.326	-16.432	-16.545	-16.662	-16.781	-16.902	-17.021	-17.136	-17.244	-17.366	-17.446	-17.525	-17.597	-17.657
830	-16.267	-16.368	-16.475	-16.587	-16.703	-16.821	-16.940	-17.056	-17.176	-17.273	-17.371	-17.463	-17.548	-17.619	-17.675
840	-16.308	-16.409	-16.516	-16.627	-16.742	-16.859	-16.976	-17.089	-17.198	-17.300	-17.396	-17.487	-17.570	-17.640	-17.675
850	-16.349	-16.450	-16.557	-16.667	-16.781	-16.896	-17.004	-17.121	-17.227	-17.326	-17.420	-17.509	-17.592	-17.661	-17.694
860	-16.389	-16.490	-16.596	-16.706	-16.819	-16.932	-16.944	-17.152	-17.255	-17.352	-17.467	-17.551	-17.631	-17.681	-17.713
870	-16.428	-16.530	-16.635	-16.745	-16.856	-16.967	-17.076	-17.181	-17.282	-17.376	-17.467	-17.554	-17.634	-17.701	-17.732
880	-16.467	-16.568	-16.673	-16.782	-16.891	-17.001	-17.107	-17.210	-17.307	-17.400	-17.489	-17.574	-17.655	-17.721	-17.750
890	-16.505	-16.606	-16.711	-16.818	-16.926	-17.033	-17.137	-17.237	-17.332	-17.423	-17.510	-17.595	-17.675	-17.741	-17.768
900	-16.543	-16.643	-16.747	-16.853	-16.959	-17.064	-17.166	-17.264	-17.356	-17.445	-17.532	-17.612	-17.696	-17.761	-17.785
910	-16.580	-16.680	-16.783	-16.887	-16.992	-17.094	-17.194	-17.289	-17.380	-17.467	-17.552	-17.636	-17.716	-17.780	-17.803
920	-16.616	-16.715	-16.817	-16.920	-17.023	-17.123	-17.221	-17.313	-17.402	-17.498	-17.588	-17.670	-17.755	-17.820	-17.860
930	-16.651	-16.750	-16.851	-16.952	-17.053	-17.152	-17.246	-17.337	-17.424	-17.510	-17.593	-17.676	-17.755	-17.818	-17.837
940	-16.686	-16.784	-16.884	-16.984	-17.083	-17.187	-17.271	-17.360	-17.456	-17.546	-17.631	-17.695	-17.774	-17.837	-17.854
950	-16.720	-16.817	-16.916	-17.014	-17.111	-17.205	-17.295	-17.382	-17.466	-17.549	-17.632	-17.715	-17.794	-17.855	-17.870
960	-16.753	-16.850	-16.947	-17.043	-17.138	-17.230	-17.319	-17.404	-17.487	-17.569	-17.651	-17.734	-17.813	-17.874	-17.886
970	-16.786	-16.881	-16.977	-17.072	-17.165	-17.255	-17.351	-17.445	-17.535	-17.620	-17.701	-17.789	-17.862	-17.902	-17.920
980	-16.818	-16.912	-17.006	-17.099	-17.190	-17.278	-17.363	-17.455	-17.545	-17.630	-17.710	-17.791	-17.870	-17.910	-17.928
990	-16.849	-16.942	-17.035	-17.126	-17.215	-17.301	-17.384	-17.476	-17.565	-17.650	-17.730	-17.809	-17.887	-17.934	-17.953
1000	-16.879	-16.971	-17.062	-17.152	-17.239	-17.323	-17.405	-17.494	-17.584	-17.674	-17.754	-17.833	-17.904	-17.988	-17.995

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